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GEORGIA SCHOOL PRINCIPALS' PERCEPTIONS OF THE IMPACT OF SCHOOL FACILITIES ON STUDENT ACHIEVEMENT

by

ZHEADRIC E. BARBRA

(Under the Direction of Walter Polka)

ABSTRACT

The purpose of this study was to examine Georgia school principals' perceptions of the impact of school facilities on student achievement. This study became the focus of the researcher's attention after working in an elementary school in Decatur, Georgia for three years and personally visiting some other schools, some of which were in excellent condition and others which were in need of serious renovation or reconstruction. After conducting a thorough review of literature in the area of school facilities and student achievement, the researcher became aware of the important connection between school facilities and academic achievement. The vast amount of literature that was available examined the relationship between the conditions of learning environments and how students are affected by them academically.

The method of data collection included structured interviews conducted with school principals, development of school portraits for each respective school and on-site observation of each school facility by the researcher. The responses from the structured interviews were reported in narrative form.

INDEX WORDS: School Facilities, Student Achievement, School Buildings,
Facilities Research

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FACILITIES ON STUDENT ACHIEVEMENT

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A Dissertation Submitted to the Graduate Faculty of Georgia Southern University in
Partial Fulfillment of the Requirements for the Degree

DOCTOR OF EDUCATION

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2006

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FACILITIES ON STUDENT ACHIEVEMENT

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DEDICATION

This dissertation is dedicated to my mother Gwendolyn Drake who now soars the heavenly skies. You inspired me to dream and to exceed what society deems achievable for poor, minority children. I wish you were here to see this day, but I know you are in heaven smiling down on me. I love you and I hope that I have made you proud. I would also like to dedicate this work to my son Isiah Malik Barbra and my nieces and nephews, DreJuan, Alaysia, Camden, and Zarriyah Barbra. Children never forget that education serves as the pathway to true freedom so continue striving and building on this great legacy. I love you all.

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CHAPTER 1

INTRODUCTION

The condition of school facilities in the United States public education system has been declining for many years and proper attention has not been paid in retiring these outdated, unhealthy and American with Disabilities Act non-compliant schools (Lyons, 2001). Although higher standards have been put in place for students and teachers alike, no such standards have been put in place as it relates to the conditions of school facilities (Lyons, 2001). The No Child Left Behind (NCLB) legislation, which was enacted by Congress, and signed into law by President George Bush in January of 2002, calls for higher standards as it relates to educational accountability at all levels throughout the public education system (Kennedy & Agron, 2004). This accountability comes in the form of raised standards on standardized testing and modified school curriculums which are rigorous and more challenging than ever before for students and teachers. The accountability movement, which emphasizes accountability for administrators, teachers and students, fails to emphasize the importance of accountability and funding for K-12 school facilities (Kennedy & Agron, 2004). According to Healthy Schools Network, Inc. (2003), after Congress created a grant program to assist with school construction, it then failed to fund the program.

It is important that educational leaders and politicians are aware of the relationship between school facilities and student learning so that positive efforts can be made to provide the most conducive learning environments, which will ensure that education reforms such as NCLB are not undermined by poor learning facilities (Tennessee Advisory Commission, 2003).

Defining School Facilities

The No Child Left Behind Act defines a healthy, high performance school building as one in which the design, construction, operation and maintenance is energy efficient, cost effective, provides good indoor air quality and protects and conserves water (Healthy Schools Network, Inc., 2003). School facilities include the physical surroundings of the school, construction materials, technology available, amount of space available for students, teachers and staff, size of classrooms, and a clean and healthy environment that fosters safety (Lemasters, 1997). School principals have the responsibility of ensuring that the above infrastructure factors are emphasized and met as it relates to the quality and standards of educational facilities (Agron, 2000).

Condition of School Facilities

Educators, politicians, parents and community stakeholders would be alarmed if they were aware of current data related to the conditions of school facilities in the United States public school system. The Association of School Business Officials International(ASBOI), authorized a nationwide study, which investigated the conditions of school facilities (Honeyman, 1999). The researchers found that 50 percent of all schools in the United States were constructed prior to 1960. Twenty-five percent of all public schools in the United States were built before 1950 and 20 percent were built before 1940. The researchers estimated that the average age of a school building in the United States was about 50 years old. The researchers also found that as of 1993, only 6 percent of all schools were built since 1980, and the price tag for completing all repairs, renovations, and deferred maintenance just to bring schools up to a good or fair condition was estimated to be at least 112 billion dollars in 1999. Honeyman also reported that 25

million students attend schools that reported at least one facilities problem, which varied from leaky roofs, asbestos issues, plumbing problems or lack of space. In this particular study, the information presented provides an in-depth view of the conditions of school facilities within the public school system at the end of the 20th Century. In a national survey conducted by the American Association of School Administrators, it was concluded that 74 percent of school facilities should be replaced or repaired immediately and an additional 12 percent were identified as inadequate places of learning (Frazier, 1993). Therefore, the findings illustrate that school facilities conditions are such that they require special attention from educational leaders.

Student Achievement

In the educational arena, there is much discussion about teaching effectiveness as it relates to school facility conditions. In a study conducted by Buckley, Schneider and Shang (2003), a survey of a large sample of teachers in Washington, D.C. and Chicago found that school facility conditions were shown to have a direct effect on teaching and learning. The findings of another study also concluded that when teachers are allowed to teach and facilitate learning in environments that are well maintained and healthy, they are able to be more effective, which inevitably affects the academic achievement of students being taught at that particular school (O'Neill and Oates, 2000).

In a study conducted by Garrett (1981), which compared the age of school buildings with student achievement, results indicated that the age of school buildings did impact student achievement. The study concluded that students who attended the more recently constructed schools scored higher on achievement tests than students who attended schools in buildings which were older or needed repair.

In a study comparing achievement results as they relate to school facility conditions, Edwards concluded that students who attended schools with excellent facility conditions scored higher on achievement tests than students attending schools with poor facility conditions. The researchers concluded that good infrastructure had a positive impact on student achievement (Berner, 1993).

In a study conducted by Schapiro (2001), which examined 1,050 United States teachers' opinions regarding the relationship between interior design and academic performance, teachers from all grade levels and geographic regions, recognized and understood that clean, well designed school facilities indeed enhanced their ability to teach and their students' ability to learn. The importance of this finding highlights the notion that when school facilities are well maintained and designed effectively there are probable educational benefits for teachers and students.

Although the No Child Left Behind Act continuously raises the accountability for student performance, there is no mention of a quality standard that should be in place as it relates to school facilities in any of the mandates (Kennedy & Agron, 2004). Schools should be subject to school facilities audits on a yearly basis. These audits could then be used and correlated to yearly student achievement. The premise is that if school conditions and environments are conducive to learning, then students will learn (Young, 2003).

In a study conducted by RTI International, California Air Resources & California Department of Health Services (2003), special emphasis was placed on school learning environments and the impact that environmental conditions have on the learning of students in K-12 who attend classes in portable classrooms in the state of California. The

researcher cites that there are clear differences in environmental factors between portable classrooms and traditional classrooms. These differences are viewed from a health stand point and outline environmental issues as they relate to portable classrooms that can potentially affect student learning and achievement.

Earthman and Lemaster (1996), in a study of the relationships between school building age, student achievement and student behavior, indicated that there is a link between building condition and academic performance. In their investigation of all scores of Virginia 11th grade students on the Comprehensive Test of Basic Skills, they found that with the exception of two sub-tests, the students in buildings with good facility conditions outscored students in buildings with poor facility conditions. The buildings with poor conditions were described as having peeling paint, nonfunctioning toilets, poor lighting, inadequate ventilation and inoperative heating, ventilation and air conditioning systems.

As further evidence of the link between school building conditions and student achievement, Chan's (1996), research concluded that older schools are not equipped to accommodate the technological systems that are needed for today's educational programs. In this research specific attention was paid to the areas of science instruction, computer education programs, and technology, all of which require improved telephone capacity, ventilation systems and electrical components.

Earthman (2002), discusses four studies which compared building conditions through the use of assessments of certain features that directly affect learning. These studies yielded similar results in the area of facility conditions and demonstrated student

• achievement scores are higher for students taught in above standard school buildings as opposed to students taught in substandard buildings.

In a study conducted by Rivera-Batiz and Marti (1995), researchers found that after surveying 599 students in an overcrowded school, nearly 40 percent of students acknowledged having a problem concentrating in class as a result of school facilities conditions. In the same study of 213 teachers at the same overcrowded school, 70 percent of teachers reported that the lack of space negatively impacted their ability to teach effectively.

Researchers Bower and Burkett (1987), compared two elementary schools in rural Tennessee, one of which was the newest school in the district and the other that was the oldest school in the district. The teachers at both schools were comparable in age, experience, and certification. Also, the children's socioeconomic backgrounds were very similar. The new school had new furniture, great acoustic conditions, and an excellent color scheme. However, the older school possessed none of those things. Based on the findings, in all areas that could be measured, the researchers concluded that students who attended the new school out performed the students who attended the older school. Researchers also noted that a significant difference existed between the relationship of student achievement and the physical environment within the two selected schools. Their findings demonstrated higher performance scores on academic tests for the students attending school in the newer school as opposed to the older school. Also, not only were achievement scores higher in the newer school, but researchers also found lower discipline rates and higher daily attendance for those students.

• HVAC serves as an acronym for Heating, Ventilation, and Air Conditioning

As it relates to the effects that poor school facilities have on student academic achievement, Uline (2000), also concluded that the physical condition of educational facilities directly impact the extent to which students learn. This once again demonstrates the importance of adequate school facilities and the impact on student success.

Uline (2000) discussed a case study that was conducted over a three-year period on preschools. Researchers, Kritchevsky and Prescott found that the physical condition of a school building directly related to students' academic achievement in the classroom. In the same article, researcher Berner, while conducting research on Washington, D.C. public schools, found that the physical condition of a school was a good predictor of student achievement. The researcher demonstrated that as the school's physical conditions improved from poor to fair, the test scores increased 5.445 points and when the school's physical condition moved from poor to excellent, achievement scores increased by 10.9 points.

Tanner & Langford (2003), in conducting research on 100 Georgia elementary school principals found that over 93 percent of principals surveyed noted that interior design had somewhat of a strong impact on student achievement. The research also focused on the perceptions of principals regarding the importance of interior design of schools. The researchers found that the importance of interior design of schools was a slightly higher priority for principals than teachers because of the principals' beliefs of its impact on student achievement.

School Facilities Court Cases

Even more than a century after the ruling of the "Separate, but equal" land mark case, Plessy v. Ferguson (1896), there is evidence that inequities still exist in education.

This is clearly seen in the area of school facilities more than a half century after the “Separate, but equal” doctrine was overturned by Brown v. Topeka Board of Education (1954), (Tennessee Advisory Commission, 2003). Research conducted by Branham (1997), concluded that the quality of school facilities can impact student achievement and creates a positive educational atmosphere that will affect society. According to Earthman (2002), deficiencies in school facilities negatively influence the student achievement for minority and poverty stricken students.

The first school facilities inequality lawsuit, although unsuccessful, occurred in 1859 in Indiana and since that time many lawsuits have been filed which focused on inadequate school facilities (Tennessee Advisory Commission, 2003). According to Agron (2000), a lawsuit in New Jersey was filed by 28 of the state’s poorest districts, which challenged the system of school funding. In that case, the State Supreme Court ordered New Jersey to pay for facility improvements with emphasis on high poverty districts. Lawsuits in Arizona and New Hampshire have also caused lawmakers in those states to create plans that are designed to assist in the repair of school facilities and aid in new construction. As a result of the litigation in Arizona in 1994, the Arizona Supreme Court agreed that the under funding for forty poor school districts of the state’s one hundred and twenty-two school districts violated the state requirements for providing the facilities and equipment necessary to allow students to meet state competency requirements (Tennessee Advisory Commission, 2003).

In Abbott v. Burke (1985, 1990, 1994), the New Jersey Supreme court ruled that “It is undisputed that the school buildings in Abbott districts are crumbling and obsolescent and that this grave state of disrepair not only prevents children from

receiving a thorough and efficient education, but also threatens their health and safety.”

The court noted that there indeed were wide gaps in the condition of school buildings in urban and suburban communities, which often prevented school programs from being successful. In *Abbott V*, the court ordered New Jersey to fund a school construction program which sought to eliminate deficiencies in all school buildings in the Abbott District. As stated by Agron (2000), “Lawmakers at the state and federal level need to better understand the importance of providing every student with an environment conducive to teaching and learning—and making available the financial tools to ensure adequate facilities for all children”.

In another case, *Tennessee Small School Systems v. McWherter* (1993), the Tennessee Supreme Court ruled that the use of the Equal Protection Clause in the school finance system which was responsible for determining funding for Tennessee State’s schools was unequal, inadequate, and unconstitutional. The court acknowledged that smaller counties with lower assessed property value and lower business activity were incapable of providing the necessary funding to sustain the education needs of their students. Therefore restructuring of education finance or special funding for these smaller counties was needed.

In *Serrano v. Priest* (1971), the California Supreme Court ruled that the California school finance system was unconstitutional. It was found to be unconstitutional due to reliance on local property taxes, which created disparities in per pupil expenditures in individual school districts. In this case, the court opinion basically was that in more affluent areas, taxes used to finance schools yielded more funding than those in poorer

areas. Therefore these disparities were seen as a form of discrimination against students in poor school districts because they were receiving less in the way of per pupil funding.

Finally, in *Robinson v. Cahill* (1972), the New Jersey Supreme Court accepted a constitutional provision that concluded that the state legislature would be responsible for providing maintenance and support of a thorough and efficient system of free public schools for the instruction of all children in the state between the ages of five and eighteen. The court held that the state legislative duty was to provide a thorough education wherever the pupils were located. The court continued with an emphasis on “thorough”, which denoted the notion of completeness and attention to detail as it related to school maintenance and not simply adequate or minimal. The court also found that constitutional problems existed with the use of property taxes to fund education in the state because in poorer districts revenues were used in other areas such as municipalities which meant funding for schools went short changed. Another disadvantage for poor school districts was the fact that property taxes were regressive in nature because the large majority of poor people spend a larger amount of income on basic housing. In the area of per pupil funding, the court found that in order to achieve equal educational opportunity, students of low socio-economic status needed added compensatory education to help offset natural disadvantages of their environment.

Educational leaders know that there are some very important variables that they have no control of as it relates to the students who attend their schools on a daily basis. These variables include family background, socio-economics, genes, etc. However, school facility maintenance, funding, design, renovations and new construction, are key variables which must be given careful and immediate attention. As

they relate to school facilities, there should be adequate allocations earmarked by every school board which would be set aside strictly for maintenance, renovations and new construction of school facilities. If lawmakers can build more prisons and youth detention centers, there surely must be funding to repair and construct more schools. State legislative bodies and school administrators should renew a commitment to providing a good education and a safe learning environment where learning can take place (Honeyman, 1999). This concept may be better explained using the poem “There Was a Child Went Forth”, by Walt Whitman(1855).

There was a Child went Forth

THERE was a child went forth every day;
And the first object he look'd upon, that object he became;
And that object became part of him for the day, or a certain part of the day, or for many years, or stretching cycles of years.

THERE was a child went forth every day;
And the first object he look'd upon, that object he became;
And that object became part of him for the day, or a certain part of the day, or for many years, or stretching cycles of years.
And the first object he look'd upon, that object he became;
And that object became part of him for the day, or a certain part of the day, or for many years, or stretching cycles of years.
THERE was a child went forth every day.

The field-sprouts of Fourth-month and Fifth-month become part of him;
Winter-grain sprouts, and those of the light-yellow corn, and the esculent roots of the garden,
And the apple-trees cover'd with blossoms, and the fruit afterward, and wood-berries, and the commonest weeds by the road;
And the old drunkard staggering home from the out-house of the tavern, whence he had lately risen,
And the school-mistress that pass'd on her way to school,
And the friendly boys that pass'd-and the quarrelsome boys,
And the tidy and fres-cheek'd girls-and the barefoot negro boy and girl,
And all the changes of city and country, wherever he went.

His own parents,

He that had father'd him, and she that had conciev'd him in her womb, and birth'd him,
They gave this child more of themselves than that;
They gave him afterward every day-they became part of him.

The mother at home, quietly placing the dishes on the supper-table;
The mother with mild words-clean her cap and gown, a wholesome odor falling off her person and clothes as she walks by;
The father, strong, self-sufficient, manly, mean, anger'd, unjust;
The blow, the quick loud word, the tight bargain, the crafty lure,
The family usages, the language, the company, the furniture-the yearning and swelling of heart.

Affection that will not be gainsay'd-the sense of what is real-the thought if, after all, it should prove unreal,

The doubts of day-time and the doubts of night-time-the curious whether and how,

Whether that which appears so is so, or is it all flashes and specks, what are they?

Men and women crowding fast in the streets-if they are not flashes and specks, what are they?

The streets themselves, and the facades of houses, and goods in the windows, Vehicles, teams, the heavy-plank'd wharves-the huge crossing at the ferries, The village on theighland, seen from afar at sunset-the river between,

Shadows, aureola and mist, the light falling on roofs and gables of white or brown, three miles off,

The schooner near by, sleepily dropping down the tide-the little boat slack-tow'd astern,

The hurrying tumbling waves, quick-broken crests, slapping,

The strata of color'd clouds, the long bar of maroon-tint, away solitary by itself-the spread of purity it lies montionless in,

The horizon's edge, the flying sea-crow, the fragrance of salt marsh and shore mud;

These became part of that child who went forth every day, and who now goes, and will always go forth every day.

This poem relates to the area of school facility conditions as the author, Walt Whitman, the quintessential American poet, describes various events which impact a child as he is moving forward in life, and how the things that the child sees or comes in contact with become a part of him. These life experiences may impact the life of the child for a short amount of time or for many years. As the child grows and progresses he sees things that are pleasant such as animals, flowers and his mother who is at home

preparing dinner. On the other hand, the child also sees things that are not so pleasant such as an alcoholic coming in from a night on the town and black children who are barefoot. For the purpose of examining the conditions of school facilities, this poem is referenced because it conveys a message, which is, if children are shown negative images or placed in negative environments, the negative things they see or come in contact with could become a part of them.

In Chapter 3 of Jonathan Kozol's *Savage Inequalities: Children in America's Schools* (1991) there is a thorough examination of the inequalities that exist within the New York Public School System. Kozol describes the issue of school facilities and unequal distribution of funding of schools, which has created a very dismal educational outlook for students of color and low socio-economic backgrounds. In some instances Kozol compares schools that are dominated by non-white students and white students. The recurring findings as described by Kozol are that many facilities deficiencies exists largely in schools attended by predominately non-white students. In visiting some of New York's inner city and suburban schools Kozol often notes overcrowded classes, major roof leaks, inadequate lighting, minimal technological capability, dysfunctional HVAC systems, outdated buildings, and many other deficiencies which impact the way students learn. Kozol continues to speculate that the conditions that exist in the schools attended by predominately non-white and students of poverty is not by coincidence, but by design.

Kozol (1992) writes the following:

A "landscape of hopelessness"—"burnt -out apartments, boarded windows, vacant lot upon garbage-strewn vacant lot"—surrounds the school.....The head of school facilities for the Board of Education speaks of classrooms unrepaired years after having been destroyed by fire. "What's really sad," she notes, "is that so many kids come from places

that look as bad as our schools—and we have nothing better to offer them.”(p. 100)

When school leaders maintain adequate facility conditions, they are sending a powerful message to students that their academic success is truly important. If concerted efforts are made to ensure adequate school facilities exist nationwide lawmakers may see a decreased need for prisons and youth detention facilities because students will be successful academically, thus creating model citizens. According to Uline (2000), the physical condition of educational facilities directly relates to the academic achievement of students.

According to Kozol (1992) the New York City Department of Corrections, noted that 90 percent of the male inmates are school dropouts. It is estimated that for each of these inmates, the department spends \$60, 000 a year. This is huge price to pay when per pupil expenditures which help to ensure adequate facilities exists can range anywhere from \$3,000 to \$12, 000 per pupil in most areas.

Statement of the Problem

Currently, the evaluation processes to assess the condition of school facilities in Georgia public schools are inadequate. Although higher standards have been placed on the academic achievement of students and teachers alike, no such standards have been implemented regarding the condition of school facilities. With raised academic standards and a more rigorously designed curriculum as a result of the No Child Left Behind Act, there has been no special emphasis placed on the importance of school facility conditions and the role they have on student achievement. School facilities may include, but are not limited to; construction materials, available technology, class size, lighting, HVAC systems and physical space for learning. Principals, who are responsible for school

facilities upkeep, receive little or no training on the proper ways to maintain schools, ensure that the schools are safe, clean, adequately lit, and have proper HVAC systems. Researchers conclude that students enrolled in schools that are better maintained than others achieve higher scores on most forms of standardized tests. Researchers have found that as school facility conditions improve, student achievement increases and as conditions become worse, student achievement decreases. Researchers contend that overall conditions of public schools in the United States are inadequate and have noted that these structures are in need of major renovations and repairs. Researchers estimate that these major renovations and repairs have a price tag in the billions of dollars.

The researcher is interested in knowing how Georgia school principals view the relationship between the conditions of school facilities and student achievement. The researcher would also like to assess the knowledge level of the selected principals in the area of school facilities.

If principals understand the implications and impact of school facilities conditions on student achievement, and develop personal philosophy's regarding their school facilities conditions, they may be more able to provide the best conditions possible for an optimal teaching and learning experience for each student and teacher. Therefore, the purpose of this study is to examine the perceptions of Georgia school principals regarding school facilities conditions and its impact on student achievement.

Research Questions

With the research suggesting a clear relationship between school facilities and student achievement, the following research questions will guide this study:

Overarching Question

What are Georgia school principals' perceptions of the impact of school facilities on academic achievement?

- To what extent do Georgia school principals place emphasis on the correlation between school facilities and academic achievement?
- What is the knowledge level of Georgia school principals in the area of school facilities and to what extent do they use this knowledge?
- How much correlation is there between school facilities and academic achievement, as perceived by Georgia school principals?

Significance of the Study

There has been limited research on Georgia school facilities' impact on academic achievement. Therefore, current research gives no clear indication of the knowledge level of principals across the state of Georgia in the area of school facilities and student achievement.

After examining the knowledge level of principals in the area of school facilities, the results will allow school districts to determine if more training in the area of school facilities is needed by principals. Once principals receive more training in the area of school facilities they will be more likely to ensure that proper measures are taken within schools to ensure school facility conditions are adequate for student learning.

In the field of educational administration, this study is important because of increased accountability for student achievement through the No Child Left Behind Act. Building principals and administrators at the district level must examine all areas that may affect student achievement, and improve them, especially in areas where they have the most control. Since school facilities are key factors affecting learning, it is important that principals and district leaders across the country understand school facilities in order

to afford students in their schools the maximum opportunity for academic achievement. The result of students reaching their maximum opportunity for learning will benefit society by creating more students who move from Pre-K through college.

These very same students will enter the workforce as educated citizens who will eventually pay taxes, replace retiring workers and develop families themselves who will understand the importance of attending and performing well in school. It is at this point, also, that the positive message is sent to the youth who attend public schools daily that educators care about them, their academic achievement and will continuously strive to provide the best school facility conditions possible. By providing schools that are adequate for learning, students will internalize the idea that society wants them to succeed and values their education. Like the concepts presented in Whitman's poem, if our students are shown positive school environments, they will view their education in a more positive light, which will cause them to give their best efforts in learning and achieving.

The study is important to the researcher because research shows that learning environments impact student achievement, but no attention is paid to provide principals with proper training and allocating resources to ensure adequate facilities for all students exist. The researcher contends that the wrong message is being sent to large numbers of students enrolled in United States public schools due to inadequate school facilities. As mentioned earlier by the researcher, in this country today, state of the art correctional and penal facilities are being designed and constructed at an alarming rate. Some of these facilities are brand new and do not have enough inmates to fill them. However, the irony is that state governments and educational agencies build schools that are not

large enough to serve student populations, are too old to meet the needs of all students and/or have inadequate school facilities. If we have better facilities in which to educate all students successfully, we may possibly eliminate the need to continue spending money to fund the construction of prisons to correct the behavior of these individuals.

Procedures

Design

The research design for the study is qualitative in nature. The justification for the use of the qualitative method of study is that the process as used here, allows for participants to give more in-depth discussion of this topic, than could be obtained by use of a quantitative research instrument. The purpose of the structured interview is to test the identified relationship between school facilities and student achievement as perceived by Georgia principals. The structured interview allows the researcher to capture richer qualitative data as opposed to capturing random information of everyone's thoughts, beliefs; etc. To supplement the limitations of the structured interviews, the researcher used on-site observation, which enabled the researcher to develop school portraits of each school visited. To further supplement the structured interview, the researcher became an active participant in each school visited because first hand knowledge was gained personally by meeting with each principal and being able to capture their body language, facial expressions, and other obvious gestures. The sample of twelve principals is appropriate for the study because it representative sample from the total population of Northeast Georgia schools. The research method also ensures that the research questions are answered accurately.

Population

The population for this research study included principals from Northeastern Georgia schools. These principals were employed in Georgia public schools that have grade levels that encompass kindergarten through twelfth grades. The sample for the research study consisted of twelve school principals selected from schools in Northeastern Georgia. Six of these selected principals represent two each of the highest performing high, middle and elementary schools in Northeast Georgia. The other six principals represent two each of the lowest performing high, middle and elementary schools in Northeast Georgia. Generalizability of the research can only be applied to the State of Georgia.

Data Collection

In order to get principals to participate in the study the researcher sent a letter to the principals requesting their participation and explained how this research may be used to impact student achievement. The instrument for the study consisted of a structured interview and an on-site observation of each school by the researcher. The structured interview consisted of eleven questions or statements developed by the researcher, which require selected principals to respond according to their opinions and feelings about school facilities and student achievement. The responses that the participants gave during the interview were recorded by tape recorder by the researcher. The on-site observation of school facilities was used to report school facilities conditions at the schools of participating principals. The on-site observations were completed during a tour of the selected schools. After one week a follow-up letter was mailed to the participants thanking them for their participation in the study.

Data Analysis

In the research study, data analysis consisted of the researcher comparing and contrasting responses to interview questions given by the participating principals and reporting the findings in narrative form. This narrative sought to give insight through comparing and contrasting participating principal's perceptions in Northeast Georgia on the impact of school facilities on student achievement. The researcher presented school portraits of each school involved in the study.

Limitations

This study is designed to examine Georgia school principals' perceptions of school facilities impact on student achievement. The ability of participants to respond accurately to the interview items may possibly skew the results.

Summary

In today's educational climate of the No Child Left Behind Act and with emphasis on raised student achievement there is no significant consideration given to the conditions of school facilities in which students are taught. School facilities conditions are vital to the learning process for students across the United States; however principals who are responsible for their schools upkeep receive little or no training as it relates to maintaining their respective schools. Research clearly shows that students attending schools that are better maintained than others are more likely to achieve higher scores on most forms of standardized tests.

Presently there is no significant body of evidence that examines Georgia principal's perceptions of school facilities impact on student achievement. Currently, no literature exists on the knowledge level of principal's in the state of Georgia as it relates

to school facilities impact on student achievement, therefore making this study significant. With heightened accountability standards for students, building principals and district level administrators, practitioners must look to examine all areas that may possibly affect student achievement and develop ways to improve them.

For the purpose of this study, twelve principals from Northeast Georgia were interviewed by the researcher. The interviews consisted of eleven questions or statements which required the participating principals to respond according to their opinions and feelings about school facilities and its' impact on student achievement. The responses from the interviews were gathered, analyzed and reported in narrative form by the researcher.

CHAPTER 2

REVIEW OF LITERATURE

The purpose of this study was to examine Georgia school principal's perceptions of the impact of school facilities on student achievement. There has been limited research on Georgia school facilities' impact on student achievement. Therefore, current research gives no clear indication of the knowledge level of principals across the State of Georgia in the area of school facilities and its' impact on student achievement. In today's educational climate of No Child Left Behind Act and with emphasis on raising student achievement there is no consideration given to the conditions of school facilities in which students are taught. School facilities are an integral part of the overall learning process for all students in United States public schools. However, principals who are responsible for their schools upkeep receive little or no training as it relates to maintaining their respective schools. Research clearly shows that students attending schools that are better maintained than others are more likely to achieve higher scores on most forms of standardized tests.

With this in mind, this review of literature was designed to highlight the most important and overall significant areas of study as it pertains to school principals perceptions of school facilities and its' impact on academic achievement.

School Facilities Research in Georgia

It is important that the researcher is able to discuss current research related to school facilities in the state of Georgia. This research is related to the current area of study and may be able provide valuable insight into the conditions of school facilities and its impact on student achievement in the state of Georgia.

Plumley (1978) conducted a study which sought to examine the relationship between the age of school buildings and the academic achievement of fourth grade students in Georgia on the Iowa Test of Basic Skills (ITBS). The researcher concluded that students in schools that were not modernized scored lower on the Iowa Test of Basic Skills (ITBS) than those students attending schools that were renovated and modernized. This gave indication that school building age does indeed impact academic achievement.

McGuffey and Brown (1978) also studied the relationship between building age and student achievement in 188 school districts in Georgia. The researchers compared fourth and eighth grade scores from the Iowa Test of Basic Skills along with eleventh grade scores on the Test of Academic Progress. Upon completion of the study the researchers concluded that there was at least a 3% difference in achievement scores of students which could be attributed to the age of school facilities after removing all other socioeconomic factors.

In a study by Chan (1979) of randomly selected 8th grade students in Georgia, it was concluded that students assigned to modernized schools scored higher on achievement tests than those attending schools that were not renovated nor modernized. The research was conducted in order to investigate the relationship between school building age and academic achievement. Once again evidence showed that newer schools yielded higher achievement scores than older schools.

In another study conducted in Georgia on the impact that school building age has on academic achievement Garrett hypothesized that when all other socio-economic factors were controlled school building age would affect student achievement. Garrett gathered data in the form of a questionnaire about each school facility, which was mailed

to schools that had eleventh grade students. After controlling socio-economic status of the sample, Garrett concluded that student attitudes are affected by the conditions of their respective schools and learning environments. The researcher also found that student productivity was affected by student comfort and that most students preferred modernized or new classrooms over older, less attractive ones (Garrett, 1981).

In a more recent study conducted in Georgia, Phillips (1997) investigated the relationship between school building age and academic achievement. The researcher found that there were indeed significant differences in both reading and mathematics scores between upper elementary students attending schools in new buildings as oppose to those students attending older schools in Georgia.

Student Achievement

In the current climate of educational accountability levied by the NCLB Act, the conditions of school facilities can be viewed as one possible indication for student learning. This is considering that all other areas of the school program are strong and well developed. As briefly demonstrated in the previous chapter research consistently demonstrates the need to consider school facility conditions when looking to improve student achievement.

In a study conducted in the District of Columbia school system, Edwards (1991) finds that students attending schools with poor facility conditions achieved 6% below students attending school with fair conditions. Further analysis indicated the scores to be 11% below schools in excellent condition.

Hines (1996), in a study of inner city high schools concluded that a relationship between building condition and student achievement did exist. Hines' research found

that student achievement percentile points were eleven points lower in substandard buildings as opposed to above standard buildings.

Earthman, Cash, and Van Berkum (1995), conducted a study that investigated the relationship between school building conditions and student achievement. The study consisted of all 199 high schools in North Dakota and the scores obtained by all eleventh graders on the Comprehensive Test of Basic Skills (CTBS) throughout the state. Results showed that in all sub-tests with the exception of Math and Social Studies that the students attending school in above standard school buildings achieved higher scores as oppose to those attending school in sub-standard school buildings.

In a study of high schools in North Dakota, a positive relationship was found to exist between school facility conditions and both student achievement and student behavior. This relationship was measured by responses from principal's that participated in a survey (Earthman, 1995).

In a study conducted on student achievement and the effects of inadequate school facilities Stricherz (2000), concluded that student achievement is impacted negatively by poor facilities, but yet there the researcher acknowledge that there is no concise evidence that proves that student achievement increases as school facilities improve.

Facilities and Teacher Effectiveness

In a study conducted by Lowe (1988), Texas state teachers of the year were interviewed and asked to give which aspects of the physical environment they felt affected their teaching the most. The teachers in the study along with some other factors placed emphasis on the ability to control classroom temperature.

Corcoran (1988) examined the relationship between school facilities conditions and teacher effectiveness. His findings indicated that physical conditions do impact teachers positively and negatively in areas of morale, personal safety, and overall effectiveness in the classroom and entire school. In this study it was found that building renovations and modernizations caused teachers in one district to rekindle their commitment and beliefs in the district. In another district where no such renovations had occurred, the teachers considered facility deficiencies to be the background for teaching and learning.

This study also found that in schools where facility conditions were poor, high rates of teacher absenteeism existed, along with reduced effectiveness, low morale and reduced job satisfaction. On the other hand when working conditions were good, teachers demonstrated high morale, enthusiasm, cooperation and accepted responsibility.

In a recent study Morris (2003), conducted a study which examined the relationships between the physical characteristics of schools, academic performance and behavior and job satisfaction among teachers. The study consisted of 164 teachers from 28 high schools in Central and North Georgia. The participants in the study provided a rating from 1 to 10 on 27 measures compiled by the researcher. There were 13 measures of the actual school facility which included natural light, carpet, acoustic tile, ventilation, noise, mold, consistent temperature control and general maintenance. And 10 measures of student behavior and four measures of teacher satisfaction.

Upon analysis of the results the researcher noted that no significant correlations existed between the physical conditions of schools and student achievement. Furthermore, the results indicated that a moderate correlation existed between the quality

of the physical environment, teacher satisfaction and student behavior. However, the most significant correlation existed between teacher satisfaction and student behavior. As it relates to health measures for both teachers and students, the results show that teachers who reported working in cleaner schools missed work less and reported lower student absenteeism.

Buckley, Schneider and Shang (2004), investigated school facility conditions to determine their impact on teacher retention. In their examination of the importance of facility quality, it was concluded that in fact the condition of school facilities does act as a predictor of whether or not teachers will decide to leave their current teaching job.

School Facilities Components

Heating, Ventilation & Air Conditioning (HVAC)

Current research suggests that classroom temperature settings can impact student learning. The significance of classroom temperatures is shown clearly in a study conducted by Peccolo (1962). In his study Peccolo examined student performance and work skills on certain tasks. These tasks included checking numbers and names, problem solving, analogies and using addition. Peccolo found that there was a significant relationship between an ideal room temperature between 70 to 74 degrees and amount of work completed by students.

In a study conducted by the New York Commission on Ventilation it was found that temperature had a direct effect on students in public schools as well as colleges in New York. The study was conducted from 1913 to 1917 and from 1926 to 1929. The participants in the study were placed in different classrooms with different temperatures and their academic achievement scored in each particular setting. The results

demonstrated that extremely high classroom temperatures produced harmful physiological effects and that an appropriate range for temperature in a classroom should be between 67 to 73 degrees.

In a study conducted by Chan (1980) he hypothesized that there would be no difference between the academic achievement scores of students taught in air-conditioned learning environments and non-air conditioned environments. After analyzing the results in the form of 8th grade Iowa Test of Basic Skills achievement scores, and questionnaires returned by school principals he concluded that air conditioning did impact academic achievement. Chan found that air conditioning actually had a greater impact on academic achievement than other elements examined in the study.

Kaufman (1984) investigated the effects of the classroom environments with emphasis on student “stressors”. Some of these “stressors” included performance pressure, academic criticism, and redirection of unwanted behaviors. One of the stressors that became obvious to Kaufman was climate conditions with emphasis on extremely hot temperatures and humidity in the classroom. Kaufman believed that the extremely hot learning environment acted as a stressor and therefore affected a student’s ability to learn and recall taught information. In conclusion of the study Kaufman believed that educators should examine students and the things that possibly cause stress in them while in schools.

Murray (1983), in another study investigated the relationship between classroom temperature, student temperature preferences (warm or cool) and student word recognition scores. The sample consisted of 268 randomly selected seventh grade

students enrolled at a suburban middle school. These students were given “The Learning Style Inventory” where they were required to select their preferred classroom temperature. The students were given the word recognition test in two different settings. One setting matched their preferred temperature and the other setting was opposite of their preferred temperature setting. The evidence suggested that although a small number of students preferred extreme temperature preferences, a high percentage of students preferred a classroom setting that was warm, rather than one that was cool.

The research presented above clearly illustrates a relationship between classroom temperatures and student achievement. Attention must be paid to ensure that all classrooms are comfortable for students and teachers so that learning is not hindered. It is obvious as shown in the research that students and teachers perform better when classrooms are comfortable.

Lighting

In schools where students must write, and manipulate objects visually it is important that proper lighting is available for maximum student performance. At a time when children are developing physically we must remember that their eye sights are still developing as well. Providing proper lighting in schools help students academically, but also aides in the development of their eye sights. There are numerous research studies that have attempted to study the impact that lighting has on student performance. Earthman (2004), describes the quality of lighting as the type which is being used, which may be incandescent or fluorescent.

Chan (1980) conducted a study which sought to examine the physical aspects of

classrooms and their impact on middle school students. Chan initially hypothesized that there would be differences in student achievement between students taught in settings with fluorescent lighting and those without fluorescent lighting. Although the results were significantly small there was an indication that student achievement increased when fluorescent lighting was used.

In an investigation by Nicklas and Bailey (1995) researchers examined the relationships between elementary and middle school student academic achievement and natural daylight. Results indicated that students in day-lit schools out performed other students by 5 to 14 percent. When the researcher compared the number of years that students attended day-lit schools and students attending non day-lit schools, results indicated an average of 14 percent increase in student performance.

According to Blackwell (1963), the eyesight is not damaged structurally by bad lighting or lack of proper lighting. In relation to poor lighting, Blackwell found that the efficiency of information collection is reduced and collection programming becomes ineffective over time. He went on further to suggest that seeing in bad light can lead to discomfort. For students this may lead to achievement problems because it may become difficult for students to retain and store information as result of poor lighting in school.

As it relates to learning and student achievement Dunn (1985) emphasizes the importance of lighting being included as an active element of the total educational environment. Dunn found that good lighting in schools contributes psychologically to the learning environment.

Knight (1980) first hypothesized after modifying the classroom lighting situation for 158 second grade students in Alabama that there would be a difference in students'

grades in reading, math and language. After allowing students to move to the area of their preference in reference to low lighting or well lit areas the researcher concluded that there was no significant difference and that in fact the control groups scored higher grades than the experimental group.

Hathaway and Fielder (1986) found that good lighting plays an important role in the overall well being of individuals who are located in a certain place for the majority of the day. This is very important since students are confined to schools between 7 to 9 hours per day during the school year.

Heschone Mahone Group (1999) completed a study which examined the effect of natural daylight on student performance. The major premise of the study was to determine if skylights in classrooms, which provide more daylight than other classrooms yield higher student achievement results for students. The research was conducted over three states and included over 2000 day-lit and non day-lit classrooms. The results indicated that students taught in classrooms that had the most daylight performed 20 percent better in mathematics and 26 percent in reading in a one year span than those students in non day-lit schools.

Age

Over time everything needs to be replaced and school buildings are no exception. The Association of School Business Officials International (ASBOI) authorized a nationwide study, which investigated the conditions of school facilities (Honeyman, 1999). The researchers found that 50 percent of all schools in the United States were constructed prior to 1960. Twenty-five percent of all public schools in the United States were built before 1950 and 20 percent were built before 1940. The researchers estimated

that the average age of a school building in the United States was about 50 years old.

The researchers also found that as of 1993, only 6 percent of all schools were built since 1980. This data clearly shows the old age of school buildings in the United States and the need for educators, politicians and researchers to renovate or reconstruct these outdated school buildings.

Cash (1993) conducted a study with the use of the Commonwealth Assessment of Physical Environment. The first question on the assessment dealt with the age of school facilities. After analyzing the data the researcher concluded that younger school buildings had a mean scale score of 191 on the Test of Academic Proficiency while older facilities had a mean scale score of 188 on the same assessment. This indicated a 3% difference in mean scale score for student proficiency.

In a study conducted by Hines (1996), in regards to age data showed that the composite scale score mean for substandard facilities was 192.70. The standard condition building had a score of 194.77 and the above standard school facilities had a score of 200.10. The researcher concluded as the conditions of school facilities improve so did the composite scale score mean for the facilities.

Ikpa (1992) conducted a study whereby results demonstrated a significantly negative relationship as it relates to the age of school buildings and student achievement. Her findings also indicated as the age of school buildings increase, the scores on achievement tests tended to decrease.

In an examination of the relationship between resource inputs and educational outcomes, Thomas (1962) concluded that a school building's age was positive and related to student achievement. In a study of mean test scores from a sample of senior high

school students Thomas found that school building age was one of the most important factors impacting educational outcomes.

McGuffey and Brown (1978) studied 188 school districts in Georgia and concluded that school building age could account for slight variances in scores ITBS scores for fourth and eighth grade students. In a similar study which compared fourth grade student ITBS test scores in Georgia, Plumley (1978) also found that school buildings do impact student achievement.

Summary

As the review of literature demonstrates the conditions of school facilities has been shown to impact student achievement of students in Georgia as well as students across the United States. According to the available literature the impact of school facilities on student achievement can be viewed from several different school facilities aspects. The literature describes, through a series of studies, how facilities conditions impact teacher effectiveness, and student achievement. The literature also describes some different aspects of school facilities and how each one might affect student learning. These components include school age, lighting, heating, ventilation and air conditioning.

As it relates to HVAC, current research suggests that classroom temperature settings can impact student learning. This relates to the comfort level of students in the learning environment and the extent that warm or cool temperatures impact learning. If students are comfortable they are more likely to concentrate and retain learned material in each class. Also, if students are not comfortable because of classroom temperatures this could very well affect their ability to learn negatively.

The research in the area of school building age seems to be quite clear and demonstrates that school building age does impact student achievement. With this information being known, it is imperative that educators continue to provide adequate funding to produce buildings that are appropriate for today's students across the country. School buildings that were constructed for an educational climate 50 or more years ago are in no way appropriate for today's heightened standards for teachers and students alike.

At a time when children are developing physically, educational leaders must remember that their eye sights are still developing as well. When proper lighting is provided in schools, it helps students academically and aides in the development of good eye sights for the future.

There was a lack of substantial literature in the area of school principal's perceptions regarding school facilities impact on student achievement and this indicates the need for further study.

In reference to the poem "There Was a Child Went Forth" by Walt Whitman(1855), again it is important that the right message is sent to our students as it relates to the conditions of school buildings which they are taught in. It is important for students to enter schools and classrooms that are inviting, well lit, technologically equipped and clean. In attempting to reach new state and federal student achievement guidelines according to No Child Left Behind Act, it is pertinent that school districts examine every area that may impact student learning and improve them. The research indicates that school facilities are one of those areas.

This is obvious according to the findings of a study of New York City schools which found that forty percent of thirty-nine schools studied had restrooms that were in deplorable conditions and did not have soap or toilet paper. Thirty-three percent showed evidence of poor HVAC systems and twenty-four percent had unclean cafeterias. The study also found that forty percent of the schools reported garbage lying around and thirty percent had inadequate lighting (Healthy Schools Network, Inc., Advocates for Children of New York, Inc., 1999).

CHAPTER 3

METHODOLOGY

The purpose of this study was to gain information on Georgia school principals' perceptions of the impact of school facilities on student achievement. The areas of study that arise as a result of the previous review of literature included: student achievement, teacher effectiveness, school facilities court cases, current United States school facilities conditions, existing Georgia school facilities research and reviews of school facility elements such as age, HVAC and lighting. With a significant body of research suggesting a obvious relationship between school facilities and student achievement, the researcher sought to gain an understanding of how Georgia school principals viewed the relationship between the conditions of their school facilities and student achievement. This chapter presents research questions, research design, procedures for data collection, and data analysis.

Research Questions

Along with research suggesting a clear relationship between school facilities and student achievement, the following research questions drives this study:

- To what extent do Georgia school principals place emphasis on the correlation between school facilities and academic achievement?
- What is the knowledge level of selected Georgia school principals in the area of school facilities and to what extent do they use this knowledge?
- How much correlation is there between school facilities and academic achievement, as perceived by selected Georgia school principals?

Research Design

The research design for the study is qualitative in nature. The justification for the use of the qualitative procedure is that the interview process as used here, allows for

participants to give more in-depth discussion of this topic, than could be obtained by use of a quantitative research instrument. The researcher interviewed 12 Georgia school principal's and examined their perceptions regarding school facilities and its impact on academic achievement. According to Patton (1990) interviews allow the researcher to obtain qualitative data through the use of open ended questions. Interviews permit the researcher to gather data that cannot be simply obtained from observation (Gay & Airasian, 2000). Interviews allow the researcher to gather information about the participants' thoughts, beliefs, knowledge and feelings about the topic under consideration.

This method allowed the researcher to complete an on-site observation of the schools visited in reference to facilities conditions. In this research, the researcher was able to enter the settings, collect detailed observations of the facilities, and consider his own observations along with the interview data collected on-site from principals (Gay & Airasian, 2000). The interviews and school visits also permitted the researcher to develop school portraits, which give detailed background information of each school. Information presented in the school portrait includes: demographics, location, free/reduce lunch, AYP status, population and other pertinent information. The sample of 12 principals was appropriate for the study because it is a representative sample from the total population of Georgia schools. The purpose of the study dictated the research method employed. It was the researcher's hope that the use of a qualitative methodology would ensure that the research questions were answered accurately, and in depth by the participants.

The main instrument for the study consisted of a structured qualitative interview administered to Georgia school principals. The qualitative interview consisted of eleven open-ended questions developed by the researcher (See Appendix A). These items required selected principals to respond according to their opinions and feelings about school facilities and academic achievement. Responses given by participants during the interview were recorded and transcribed by the researcher. According to Clandinin & Connelly (2000) entire and partial audio tapes can be transcribed and field notes derived as the researcher listens and relistens to the recorded interview. This is dependent on what the specific data the researcher is seeking.

At the conclusion of each interview with the permission of the principal the researcher toured each school and conducted an on-site observation of facilities conditions at that particular school. The on-site observation of school facilities was used to evaluate school facilities conditions at the schools of the selected principals. This involved the researcher making notes about the physical aspects of each specific school. The on-site observation was completed during a tour of the selected schools with each principal.

In order to ensure that the structured interview was legitimate and valid, the researcher permitted a review of the interview in its entirety by two school principals. The review of the interview sought to identify any questions that were offensive in nature, irrelevant to area of study, posed improperly, or misleading.

Along with review of the interview questions by two additional school principals, the researcher conducted practice interviews to determine whether the information sought would be obtained through the interview items. Most importantly the practice interviews

served as a barometer in determining the degree to which the research questions would be answered. According to Gay & Airasian (2000) feedback from a small pilot study can be used to modify, add, or remove anticipated interview questions which are not sound. The pilot study also allows the researcher to determine if the data collected can be analyzed in a manner that answers the posed research questions.

The major premise for the design of the collection strategies employed in the study are rooted in concepts described by Marshall & Rossman (1999). The first general principle to the collection strategy is that data collection should relate closely to the specific type of information sought. Next, the researcher should determine the most practical, effective, and ethical manner in which to collect this information. And lastly, the research proposal should demonstrate that the researcher is capable of designing and selecting data collection methods that are consistent with information needed, well organized, and specific to the degree that it can be replicated.

Data Collection

The methods planned for data collection were related to the type of information sought and therefore consisted of structured interviews conducted with each participating school principal, school portraits obtained from data compiled from the principals of participating schools, and on-site observation of the schools visited. Permission was requested by the researcher to conduct the study with each principal before any information was collected. Confidentiality is being maintained in compliance with IRB requirements.

After the principals acknowledged the study and provided consent for participation, the researcher then scheduled interviews, on-site observations, and

developed school portraits for each school. These interviews were completed at the school and in the confines of the principal's office. Questions were designed by the researcher which sought to gather Georgia school principals' perceptions of the impact of school facilities on academic achievement. The interview questions also sought to gather information related to the knowledge level of Georgia school principals in the area of school facilities (See Appendix A).

Population

The participants for this research study included principals from Northeastern Georgia schools. These principals were employed in Georgia public schools that have grade levels that encompass kindergarten through twelfth grades.

Six of these selected principals represent two each of the highest performing high, middle, and elementary schools in Northeast Georgia. The other six selected principals represent two each of the lowest performing high, middle, and elementary schools in Northeast Georgia. Generalizability from the research could only be applied to the State of Georgia. The twelve school principals were contacted by mail and by phone requesting their participation in the study.

In order to get the principals to participate in the research study the researcher simply prepared a letter outlining the scope of the study and informing them that the data collected will be used for completion of this doctoral dissertation. The structured interview questions were set out in an instrument (See Appendix A). In the letter and by phone the researcher explained to the participants why it was important for them to take part in the research and informed them that their identities and that of their schools would remain strictly confidential.

Data Analysis

In this research study, data analysis consisted of the researcher comparing and contrasting the responses to interview questions given by the selected principals and reporting the findings and commonalities in narrative form. Yin (1989) defines data analysis as a process of examining, categorizing and tabulating evidence, which is then presented in a meaningful format. This narrative has given insight on the perceptions of principals of both low and high performing schools in Northeast Georgia in the area of school facilities and academic achievement. Qualitative researchers use personal interpretation to analyze data collected and provide an explanation of the information and specifically what it means to the participants (Gay & Airasian, 2000). The researcher has presented school portraits of each school involved in the study which served to provide background information about each school.

Limitations

This study was designed to examine Georgia school principals' perceptions of school facilities impact on academic achievement. The ability of participants to respond accurately to the qualitative interview items may have possibly skewed the results.

Role of the Researcher

The researcher is currently employed as an assistant principal at a Title I middle school in the Walton County School System. Walton County borders Gwinnett County to the West and Newton County to the South. The researchers' role in the described study included: determining which Georgia school principals were selected for the study, gathering their permission to participate in the study, interviewing these principals as it

related to their perceptions of school facilities impact on student achievement, creating school portraits of each school, conducting on-site observations of each school and presenting the data in Chapter IV of the dissertation.

CHAPTER 4

REPORT OF DATA AND DATA ANALYSIS

Although higher standards have been placed on student achievement for students and teachers alike as a result of the No Child Left Behind Act, no such standards have been implemented regarding the condition of school facilities. The researcher was interested in knowing how Georgia school principals viewed the correlation between the conditions of school facilities and student achievement. The researcher also wanted to assess the knowledge level of the selected principals in the area of school facilities.

When principals understand the implications and impact of school facilities conditions on student achievement, and develop personal philosophy's regarding school facilities conditions, they are more inclined to provide the best conditions possible for an optimal teaching and learning experience for each student and teacher. Therefore, the purpose of this study has been to examine the perceptions of Georgia school principals regarding school facilities conditions and its impact on student achievement.

Along with research suggesting a clear relationship between school facilities and academic achievement, the following research questions drives this study:

- To what extent do Georgia school principal's place emphasis on the correlation between school facilities and student achievement?
- What is the knowledge level of Georgia school principals in the area of school facilities and to what extent do they use this knowledge?
- How much correlation is there between school facilities and academic achievement as perceived by Georgia school principals?

In the following chapter a presentation of the data obtained from structured interviews is provided along with school portraits of each school participating in the study. This chapter will also present a demographic profile of the participants used in the study. Information noted from the on-site observations made of the conditions of each school's facilities is provided. The researcher notes that in order to maintain anonymity amongst the participants, their schools and school districts have been coded with pseudonyms and will be referred to as such.

Information obtained from the structured interviews allowed the researcher to answer previously stated research questions. Along with review of the interview questions by two school principals, the researcher conducted practice interviews with two additional principals to determine whether the information sought would be obtained through the interview items.

Respondent Demographic Profile

The participants in the research study were comprised of eight men and four women. Of the eight men participating in the study two were African American and six were Caucasian. Of the four women participating in the study, two were African American and two were Caucasian. Of the twelve participants, three held Doctorates of Education Degrees and the other nine held Specialist Degrees in Education. The average estimated age of each participant was 48 years old.

School Portraits

Elementary Schools

Alphabet Elementary School is one of 14 schools in the Alphabet County School System. The school building is currently 30 years old and the current student population

consists of 700 students. The demographic profile of the student population is 53% African American, 41% White, 3% Hispanic and 2% Mixed Ethnicity. Alphabet Elementary met Adequate Yearly Progress(AYP) standards for the 2004-05 school year. Alphabet Elementary is located east of Atlanta in a rural area. The principal is serving in her sixth year at Alphabet Elementary, which serves as a Title I elementary school.

Sunrise Elementary is one of 21 schools in the Sunrise County School System. The original school building is 50 years old, and the current student population consists of 415 students. The demographic profile of the student population is 80% African American, 18% Caucasian, and 2% Hispanic. Sunrise Elementary met Adequate Yearly Progress(AYP) standards for the 2004-05 school year and was awarded “Distinguished Title I School” in 2005. The principal is serving in her third year at Sunrise Elementary School.

Lee Road Elementary School is one of 19 schools in the Lee County School System. The school building is currently 4 years old and the current student population consists of 746 students. The demographic profile of the student population is 17% African American, and 83% Caucasian. Lee Road Elementary did not meet Adequate Yearly Progress(AYP) standards for the 2004-05 school year. The principal is serving in his fourth year at Lee Road Elementary School, which is not a Title I elementary school.

Grant Elementary School is one of 14 schools in the Grant County School System. The main school building is currently 51 years old and the current student population consists of 462 students. The demographic profile of the student population is 61% African American, 32% Caucasian, 4% Hispanic and 2% Other. Grant Elementary did met Adequate Yearly Progress(AYP) standards for the 2004-05 school year. The

principal is serving in her second year at Grant Elementary, which is a Title I elementary school.

Middle Schools

Monument Middle School is one of 16 schools in the Monument County School System. The school building is currently 14 years old and the current student population consists of 1350 students. The demographic profile of the student population is 48% African American, 45% Caucasian, 5% Hispanic/Asia and 2% Other. Monument Middle School met Adequate Yearly Progress(AYP) standards for the 2004-05 school year. The principal is serving in his first year at Monument Middle School, which is not a Title I middle school.

Washington Middle School is one of 14 schools in the Washington County School System. The school building is currently 14 years old and the current student population consists of 770 students. The demographic profile of the student population is 39% African American, 53% Caucasian, 2% Hispanic, 2% Asian and 4% Other. Washington Middle School did not meet Adequate Yearly Progress(AYP) standards for the 2004-05 school year. The principal is serving in his first year at Washington Middle School, which is a Title I middle school.

Granite Middle School is one of 4 middle schools in the Granite County School System. The school building is currently 15 years old and the current student population consists of 970 students. The demographic profile of the student population is 40% African American, 50% Caucasian, 6% Hispanic, 4% Asian and Other. Granite Middle School met Adequate Yearly Progress(AYP) standards for the 2004-05 school year. The

principal is serving in his third year at Granite Middle School, which is not a Title I middle school with a 16% Free/Reduced lunch rate.

Clemson Middle School is one of 8 middle schools in the Clemson County School System. The school building is currently 16 years old and the current student population consists of 1170 students. The demographic profile of the student population is 61.7% African American 30.4% Caucasian 3.6% Hispanic and 4% Other. Clemson Middle School did not meet Adequate Yearly Progress (AYP) standards for the 2004-05 school year. The principal is serving in her fourth year at Clemson Middle School, which is not a Title I middle school.

High Schools

Newside High School is one of 4 high schools in the Newside County School System. The school building is currently 12 years old and the current student population consists of 1460 students. The demographic profile of the student population is 39% African American, 60% Caucasian, and 1% Hispanic. Newside High School met Adequate Yearly Progress (AYP) standards for the 2004-05 school year. The principal is serving in his first year at Newside High School and Newside High School is not a Title I school.

Indian Creek High School is one of 4 high schools in the Indian Creek County School System. The school building is currently 14 years old and the current student population consists of 1400 students. The demographic profile of the student population is 48% African American, and 52% Caucasian. Indian Creek High School met Adequate Yearly Progress (AYP) standards for the 2004-05 school year. The principal is serving in his third year as assistant principal at Indian Creek High School. Indian Creek High School is not a Title I high school.

East High School is one of 4 high schools in the Hiram County School System. The school building is currently 15 years old and the current student population consists of 2150 students. The demographic profile of the student population is 25% African American, 70% Caucasian, 4% Hispanic and 1% Other. East High School did not meet Adequate Yearly Progress(AYP) standards for the 2004-05 school year. The principal is serving in his eighth year at East High School, which serves as a Title I high school.

Laney High School is one of 3 high schools in the Laney County School System. The school building is currently in its first year of use and the current student population consists of 1300 students. The demographic profile of the student population is 53% Caucasian, 40% African Americans, 4% Hispanic and 3% Other. Laney High did not meet Adequate Yearly Progress(AYP) standards for the 2004-05 school year. The principal is serving in his fifth year at Laney High, which serves as a Title I high school.

On-site Observations

The researcher notes that the school facilities for **Alphabet Elementary** are in need of dramatic improvement. The hallways need painting and are not pleasing to the eye. The restrooms are filthy as researcher notices mold and mildew around the urinals used by students. The restrooms have poor air ventilation, and no exhaust fans, which creates obvious odors. In a discussion with the principal of Alphabet Elementary the researcher was informed that the HVAC system was problematic and often created health hazards as a result of dust that is constantly created. From what the researcher gathered, this was due to the fact that the filters are not changed regularly along with a problematic HVAC system. The researcher was informed that the lighting in the school was recently retrofitted throughout the building, which brightened the school. The principal stated that

the lighting made a difference with her students. The researcher interviewed the principal in the confines of her office, which was small; less than 20 feet from the front door of the school and allowed distractions of outside noises as a result of a partition board walls that enclosed the office.

As the researcher arrived to interview with the principal of **Sunrise Elementary**, he notes that the entrance to the school is less than 100 yards from a cemetery. The school is located in a low income area that has that has numerous government subsidized living units. The school is very old and was built in 1956. The upon entering the building the researcher notices that the hallways are clean and free of trash and debris. Although most of the restrooms have been renovated, they still require attention from the custodial staff. In one restroom in particular a cleaning cart with cleaning supplies and dirty mop water was parked unattended, which posed a health hazard to curious elementary students. The researcher would consider the lighting in the building to be fair, but could use improvement with brightness. The building is segmented, which means some grade level and elective classes are detached from the main building. The researcher was informed by the principal that this does create a hazard because despite the weather conditions very small students have to enter and exit the building regularly to get to and from classes. There are ten portable trailers which serve as classrooms and this is also a concern noted by the principal. The school is currently undergoing a very extensive renovation that includes the addition of a new wing that will add classrooms, front office space, a larger cafeteria, teacher workroom and more. The on-site construction does not create a hazard for the students due to the manner in which the areas are fenced. The researcher interviewed the principal in her office, which felt very small and cramped.

Although the office was small, it did allow privacy without noise distractions from outside activities

The researcher was informed that **Lee Road Elementary** was constructed less than five years ago. The researcher found the school to be very comfortable during the visit. The front office was welcoming and upon entering the building the researcher noticed that the floors were waxed and free of trash. The researcher noted that the restrooms were clean, had no obvious odors and were in excellent condition for students. Lighting in the building was very bright and created visual clarity in work spaces. The HVAC system provided comfort throughout the building. The building is attractive in design and the landscape is clear and free of debris. The interview took place in the confines of the principals' office, which had new furniture, and was more spacious than the other elementary schools visited.

The researcher was informed that **Grant Elementary** was constructed 51 years ago. The school itself has segmented wings, which are detached from the main building. According to the principal this design exposes students to weather elements daily. The researcher found the principal's office and front office area to be limited in space and did not create enough work room for personnel. The researcher learned that lighting in the school was upgraded throughout the building, which helped brighten the school visually. The researcher was made aware that a new Grant Elementary was currently under construction at a different location and was scheduled to open in January 2007. The interview took place in the principals' office.

Upon entering **Monument Middle** school the researcher found the school to be well maintained. The restrooms were clean and had no obvious odors. The researcher

noticed that the cafeteria was very large, which suited the schools' 1400 students. In the cafeteria the researcher was made aware of odor, which the principal thought was gas. Throughout Monument Middle a vast amount of natural light passes through due to the long windows that are in many classrooms. The gymnasium is well kept and very attractive for a middle school. The researcher observed that ample administrative, conference and counseling space existed within the school. The researcher observed that the lighting is not bright enough as the hallways appear to be very dim. It is the researchers' view that the school is well suited to serve the needs of all attending students. The interview occurred in the principals' office, which was very spacious when compared with the other middle schools visited. The office also contained nice furniture and was very comfortable.

The researcher found **Washington Middle** to be well maintained. The restrooms were clean and had no obvious odors. New recessed lighting was recently installed throughout the building, which created visual brightness. The researcher was informed by the principal that the staff was very excited about the recently installed lighting and stated that the lighting somehow made them feel better while at the school. The gymnasium is well kept and very attractive for a middle school. The researcher observes that limited administrative, conference and counseling space exists within the school. The researcher further notes that the carpeting in those areas was installed during original construction of the school. The HVAC system was found to be problematic throughout the building which created inconsistent temperatures throughout the building. The interview took place in the principals' office which was very comfortable. The furniture in the office was relatively new and arranged comfortably. The location of the office

allowed for distractions during class changes as a door from the office exited into the hallway.

Upon parking at **Granite Middle** school the researcher observed that the landscaping in front of and around the school was very attractive. Upon entering the building the researcher felt very professional as a result of the design of the front entrance. The researcher observed that the restrooms are clean and have no obvious odors. The researcher found the school to be comfortable as a result of the HVAC system. The hallways were clean and free of debris. The researcher notes that the lighting was fair and very dim in some places and could be brightened throughout the school. The gymnasium is well kept and ample administrative office, conference and counseling space exists within the school. The interview took place in the principals' office, which was very spacious and comfortable. The office was decorated with seemingly new office furniture.

Researcher observes that **Clemson Middle** school was in excellent condition, and well maintained. The restrooms were clean with no obvious odors. The researcher observed that the floors were waxed, and that the front office was clean, spacious and welcoming. The hallways were clean and free of debris. The researcher notes that lighting is bright throughout the building. Ample administrative office, conference and counseling space exists within the school. The facility is very well suited to serve the needs of all attending students. The interview took place in the confines of the principals' office, which was very comfortable. The office furniture appeared to be new and the office eliminated outside distractions during the interview.

The researcher was impressed by the cleanliness of **Newside High** school. The restrooms were clean, with no odors present. Functioning exhaust fans were in use in all restrooms to regulate fresh air exchange. The cafeteria was well suited for the students of Newside High. The hallways were clean, free of debris and wide enough for large numbers of students to move through them efficiently. The researcher found the lighting in the school to be very bright when compared to other schools in the study. The researcher found the gymnasium to be impressive and reminded the researcher of a gymnasium that one would expect to find in a small community college. Ample administrative, conference and counseling space exists within the Newside High school. The school is suited to meet the needs of all attending students. The school was very pleasing to the eye and is situated across from a swim and tennis community. The interview took place in the principals' office which was very comfortable. The office was very large in comparison to the other high school visited and was decorated with nice office furniture. The researcher had the feeling that he was in a superintendents office as oppose to a principals' office.

Upon entering **Indian Creek High** school the researcher notes that the building seems to be in excellent condition, and very well maintained. The researcher finds the comfort level is excellent due to the HVAC system, which creates temperatures that are consistent throughout the building. The restrooms are clean with no obvious odors. The cafeteria, which is used for many school events, is well suited for the students. The hallways are clean, free of debris and are wide enough to allow travel by large numbers of students at once. The lighting throughout the school is very bright. The gymnasium is well kept and very attractive for a high school. Ample administrative, conference and

counseling space exists within the school. The school has carpet that is well kept in the office areas. The school is suited to meet the needs of all attending students. The atrium is eye catching upon entering the school due to its' grand design. The interview took place in the principals' office and was not interrupted by outside distractions. The office was very comfortable, spacious and was decorated with seemingly new furniture.

The researcher found **Eastside High** school to be in good condition and the researcher was informed that the school received an additional wing in previous years. The building was well maintained and the restrooms were clean. The hallways are carpeted throughout the building which helps to lower the amount of noises during class changes. The hallways were clean and free of debris. The researcher observed that lighting was very dim in some areas and could use improvement. The school is suited to meet the needs of all students attending. The interview took place in the comforts of the principals' office. The office was very spacious and decorated with seemingly new office furniture. The interview occurred with no distractions from outside influences.

Laney High school was constructed within the last two years and was in its' first year of operation at the time of the visit by the researcher. The building was well maintained and the restrooms were clean. The researcher found the hallways to clean and free of debris. The lighting in the school is very bright and great for visual clarity throughout the building. The school is well suited to meet the needs of all students attending. The school is designed with ample administrative, counseling, and conference space. The interview occurred in the confines of the principals' office, which was very comfortable and spacious. The furniture in the office was new and attractive. Throughout the interview no distractions from outside activities existed.

Elementary Principals Interviews

1. How many clock hours of training have you received in the area of school facilities upkeep and maintenance?

Principal of Alphabet Elementary

The last time that I received formal training or completed a formal class was at the University of Georgia in 1998 and I completed the facilities class under Dr. Ken Tanner. I can't remember the class number, but that was the last time I had training in facilities. In all I would say about 80 hours in facilities training.

Principal of Sunrise Elementary

Ooooh. Probably not very many. That's an interesting question. Other than our system facilities director presenting things at our monthly principal's meeting, I would say 10 to 15 hours of things addressing facilities at the monthly principal's meeting. Other than that, I have very little training in facilities.

Principal of Lee Road Elementary

Clock hours? You talking about on the job training? Probably two courses

Principal of Grant Elementary

I would say only about 8 hours to be quite honest with you. That has entailed visits from a school superintendent to do the facilities planning with us. Visits from our facilities director, to do walk thru's with us to highlight concern areas in the building, so I guess I would say about 8 hours total.

In analysis of the responses to this interview question the researcher notes that the participating elementary principals have not received formalized training in the areas of facilities. With the exception of graduate coursework all concepts in reference to school facilities were not derived through facilities training. School principals have the

responsibility of ensuring that infrastructure factors are emphasized and met as it relates to the quality and standards of educational facilities (Agron, 2000).

- 2. During your educational administration preparatory program how many courses did you complete in the area of school facilities? And how have employed the learned concepts to ensuring the best school facilities conditions possible?**

Principal of Alphabet Elementary

I completed one course in school facilities. To be honest the last time I took that course was back in 1998, so I haven't received had formal training since then. And so the training I received at that time was based on that time and era.

Principal of Lee Road Elementary

Two classes. Well as an administrator you're constantly focusing on safety and the safety of your building. Basically, what I learned the most from those classes is that you can never take a day for granite, you have to constantly monitor your facilities for proper upkeep and maintenance and for student safety.

In examining the number of school facilities courses taken by elementary principals, on average each participant had taken less than one course in the area of school facilities. The principal of Grant and Sunrise Elementary stated that they had not taken any school facilities courses. It is important that educational leaders and politicians are aware of the relationship between school facilities and student learning so that positive efforts can be made to provide the most conducive learning environments (Tennessee Advisory Commission, 2003).

3. Is school facilities maintenance a delegated duty for another school level administrator or is this a duty that you choose to see after?

Principal of Alphabet Elementary

It is a shared duty that my assistance principal takes care of and oversees. He's responsible for the custodian staff, their schedules, duties and responsibilities, but we meet as a team to review facilities concerns.

Principal of Sunrise Elementary

It is a duty that I have taken on so the lead custodian reports to me. I have a team of four custodians that conduct most of the maintenance of the facility and pretty much anything else that comes up about facilities comes directly to me.

Principal of Lee Road Elementary

This is something we see after ourselves. "We", being the administrative team, I mean, I have a great bookkeeper that inputs the work orders into WebDesk. My secretary inputs the work order, but if it's something majors occurs I'm always contacted. Whether it's a leak or something that's some major safety concern.

Principal of Grant Elementary

I do it myself.

In response to this interview question, most principals stated that school facilities maintenance was a duty that they themselves were responsible for or was a shared duty with another school level administrator. School principals have the responsibility of ensuring that the infrastructure factors are emphasized and met as it relates to the quality and standards of educational facilities (Agron, 2000).

- 4. How would you rate the impact of school facilities conditions on academic achievement on a relative scale of 1 to 10? Explain. With 1 being the lowest rating possible and 10 being the highest rating possible for school facilities impact on academic achievement.**

Principal of Alphabet Elementary

I would have to say that it a 10 and the reason is because right now according to the way our facilities looks, our facilities could use a lot of upkeep. Especially with our bathrooms. And students perform well under safe and sanitary conditions, so that is my honest belief as a principal, so I am constantly meeting with my custodians trying to get restrooms clean, making sure that the facility looks nice and pleasing to the eye, but sanitary as well. This facility is 30 plus years old.

Principal of Sunrise Elementary

As far as the age of the facility or conditions? Okay. One to ten I would say seven. Right

Principal of Lee Road Elementary

I would have to rate it a 10 because our county is very proactive in maintaining excellent facilities. So I would have to say a 10.

Principal of Grant Elementary

I would have to say an 8. Unfortunately, we're in a very old facility and have a lot of problems with the heating and air. A lot of problems sometimes with the lighting and we have a lot of bulbs that blow often due to bad units. However, I do look forward to that changing once we move to our new facility next year. Yeah, it's a really old place and really does impact when you have to bring the maintenance workers during

classroom time to change out light bulbs that's been out for sometime and it's continual so I would definitely say an 8.

In analysis of this particular interview item, the elementary principals clearly demonstrated the importance of school facilities and its' impact on academic achievement. The principal of Lee Road and Alphabet Elementary rated the impact of school facilities on academic achievement the maximum possible, which was a 10. This echoes Tanner & Langford (2003) research which was conducted on 100 Georgia public elementary school principals and concluded that 93 percent of principals surveyed noted that interior design had somewhat of a strong impact on student achievement.

5. In what ways do you view school facilities conditions impacting academic achievement within schools? Explain.

Principal of Alphabet Elementary

Within all schools I feel like it does. I mean if you have a clean facility, which is safe and students enjoy going into the classrooms and enjoy doing the work and the lighting is right, temperature right, restrooms are clean, it sets a tone and a climate for comfort. And therefore if students comfort level is good students will feel comfortable to achieve.

I would say the implications would be if the facility is dirty or if the lighting is not right, if students don't have adequate desks or supplies or if it's not, I feel like if it is unkept then it gives a message to the students that we don't care about our school and if we don't care about our school then it also sends another message that we don't care about learning.

Principal of Sunrise Elementary

I think the cleanliness factor, the overall appearance is very important. And that to me can be separate from age of the building because our building is probably the oldest one still in use here in the county I would think. But, when it is well kept and well maintained and the appearance of the school is positive I think it has a big impact on how students, staff and school community feel about their school. So I do think that's very important and it is not always related to the age of the school. But, I think that goes into making that safe, healthy learning environment that we want to present to our students.

I would say, of course Sunrise Elementary for a number of years we have felt that Sunrise needed some renovation. And it had not been renovated for a number of years. I think to me different factors; the school board here was not quite sure which direction they were going with it. Do we want to invest money in the school or do we want to build a new school? So there were reasons for it, but I will say from time to time staff members and perhaps community members felt that we were being intentionally overlooked. I don't think that's the case, but I think that did make us sometimes feel like we were not getting to par with what the other schools had. But, having said that, I think more things are in place that makes the students and the school community feels very good about their school. Of course with us we have shown that we have had quite exceptional academic achievement even though our school has been the oldest and has not been renovated. So it is a factor, but if you have good relationships with your stakeholders and you have a dedicated staff that are

committed to kids and if you have all that in place, then that is more important than the facilities, but it is still a factor in your morale and how you feel about things.

Principal of Lee Road Elementary

That's a hard question. On a scale of 1 to 10 I would have to say 6 or 7 because this is all fine and dandy that we have a new facility here that is four years and that is great.

The students are proud of it, parents are proud of it. However, facilities don't help good teaching. Without a good environment, good teaching could occur in an old building, or a new building or an dilapidated building.

Principal of Grant Elementary

Well, I think they really affect us because we are so segmented here. We have six buildings and my fifth graders who are my oldest population, which I am most concerned about are far away from the main building. The doorways open outside on that particular segment. We don't have a hallway for them. So when we're looking at cold weather, rain, that impacts students behavior because a lot of times they are running to class because their cold or trying not to get wet. I would say because we are so segmented in this very old facility that was built in 1955, it definitely impacts student achievement as well as the attitudes and behavior of the kids during the inclement weather.

The elementary principals overall felt that the school facilities did impact their respective schools. One idea that was mentioned by the principals more than once was school facilities and its' impact on the overall climate of the school. In reference to school facilities conditions impacting the school program the principal of Grant Elementary explained that her building is segmented, and how the fifth graders are

subject to weather elements when they move from place to place. Nonetheless, depending on the particular school situation the principals felt that the school facilities did impact their educational programs. Uline (2000) discussed a case study that was conducted over a three-year period on preschools and researchers found that the physical condition of a school was a good predictor of student achievement. Although the principal of Lee Road Elementary was in a building that was only four years old he was very adamant that the school building itself did not automatically guarantee academic success by students.

6. At this point do you feel as though school facilities maintenance is important at the county level? Explain.

Principal of Alphabet Elementary

Yes. Right now I feel like at our county level there's so many schools in need.

Therefore the county level administrators are kind of stretched with what needs to be modified. I recently had a walk thru with the assistant superintendent in our building and they are looking at modifying it and making it pre-k thru fifth grade.

But, the process is slow and I have a strange feeling that we're going to enter the school year pre-k thru fifth grade and not have everything prepared. So, I'm a primary school right now with a facility that only takes care of young kids but when I get my third, fourth, and fifth grade students I don't know what's going to happen, and I just have to do what I can to prepare the facility for that. There are some things on the table and we are discussing things and there is a plan, but I feel like executing the plan is going to fall back. I was hoping that they would expedite the process so that when we do open pre-k thru fifth grade we would be already prepared.

Principal of Sunrise Elementary

I do think it's important. Like I said the director addresses us with concerns at every principal's meeting and he's doing an excellent job with that. He is visible in the schools and he was just here yesterday as a matter of fact. He is always checking in with things. Our system, I think especially in the last couple of years has taken it on with a high priority. And I have witnessed that here. Of course I know we're under construction of a new wing, cafeteria and they kind of check in with us. But, really they are doing a very good job moving through every school in a systematically approach to ensure everything is taken care of. He even came up with a new plan this year for some maintenance people who work in middle schools one day a month to come over and help each principal with maintenance needs at their schools that they were having difficulty getting done. This has caught up so many things that were beyond the time and level of experience of my custodians, but came over and quickly took care of things.

Principal of Lee Road Elementary

Yeah. Absolutely.

Principal of Grant Elementary

I think it's becoming increasingly more important since we have switched from a contracted company to county employees overseeing facilities themselves. They have hired a new director of that department and the county now seems to be taking more ownership because when it was contracted out it was pretty much someone else's concern. Now that it's back under county responsibility I do think they are making it more of a priority.

In analysis of this particular interview question, the principals believe that school facilities are important at the county levels in their respective school districts. One thing that was noticeable was that the priority of school facilities and maintenance has increased in importance over time. The principal of Alphabet elementary did acknowledge the fact that her county was somewhat over extended as it related to the schools in need and the amount of facilities personnel to help with certain deficiencies. She didn't seem too convinced that the plans to modify her school in preparation for 5th grade students were going to go as planned in her county. The condition of school facilities in the United States public education system has been declining for many years and proper attention has not been paid in retiring these outdated, unhealthy and American with Disabilities Act non-compliant schools (Lyons, 2001).

7. How would you rate your school in the area school facilities on a relative scale from 1 to 10? Explain.

Principal of Alphabet Elementary

I would rate our school as a 6. It's average, because right now it's meeting the needs of serving primary students. But as the population in our county increases and as we move into the school year being pre-k thru fifth grade. You know? Maybe until they make the modifications that's just my rankings at this time. Because, there's lots of repairs that are needed and lots of modifications.

Principal of Sunrise Elementary

As far as facilities, not necessarily, we do have some plumbing problems because of the age of the building. I would say because we have no major complaints I would say a 7.

Principal of Lee Road Elementary

Ummm. I would say a 9. It's not perfect.

Principal of Grant Elementary

Probably a 3 to be quite honest with you.

On average the elementary school principals rated their schools a six on a scale of one to ten, which clearly demonstrates that they see room for improvement of their facilities. The highest rated score given was a nine, which was given by the principal of Lee Road Elementary, which is a new school that is only four years old. The lowest rating given was a three and was given by the principal of Grant Elementary. This was very interesting in relation to a study conducted by Lumley (1978) where he concluded that school buildings did impact student achievement. The ratings above suggest that these elementary principals are acknowledging that their school buildings could use improvement in the area of school facilities.

8. Explain what you would describe as the most important school facility component affecting the educational program within your school?

Principal of Alphabet Elementary

I would say HVAC. It would have to be that for this school because right now we have single units in each class room and they're trying to make it all in one unit. They've been working on this for two to three years and it's still not together. We've tried to work out a plan so that filters can be changed regularly and the vents, but my custodial staff is at a minimum. Therefore the filters are not being changed regularly and therefore dust is created. So dust gets all over the place, thus creating respiratory problems. Maybe with employees and some of the students. It's almost like the fighting battle, you know once we get it clean, then I have to make sure I stay on the

custodians and on central office to make sure that this is going on regularly. For my school it would be the HVAC. It was not the lighting this time, because they did switch out the lighting and they did that this fiscal year. And we're working with a lighting contractor and they came in and switched out all the lights in the building so its made the atmosphere brighter and we an see things clearer and that has really helped student achievement.

Principal of Sunrise Elementary

Probably, overall I would say maybe the comfort level so that would involve the heating and air. So there's the comfort level and the lighting also because if that's not appropriate then it can affect the way students are able to handle things in the classroom. So, really I would say the overall feeling for the building. The cleanliness, the safety, but those two things I think. Anything that relates to the comfort level.

Principal of Lee Road Elementary

I would say in a facility that, I think in a environment I would say HVAC maybe the most important or one of the most important because we're so spoiled as individuals that when it gets hot that's all we can concentrate on. And when we get cold, that's all that we can concentrate on. So I think it is important that the HVAC is maintained at a steady environment for students and teachers.

Principal of Grant Elementary

My highest concern would be the location of my fifth grade. With them being my most critical grade and with them being so far out. Of course, I'm always out there. I mean if you miss me that's where I am because their so far from us and their open to the outside. So, that's my most critical concern. No doubt about that.

In capturing each elementary principal's attitude in reference to this particular question, the researcher found that in nearly every response the principals discussed the comfort level and the importance of HVAC within their schools. They felt like HVAC was vital to their students and teachers as well.

9. Do you feel that you have been properly trained in order to determine when school facilities conditions are in need of improvement? Explain.

Principal of Alphabet Elementary

Um..... No, I would not say that as far college and as far as just within the district every facility is different, it's almost like when you become principal, you really need to be trained or walked thru with someone who is familiar with the building so that you can understand the building. Some of the things that are going wrong in my building I'm finding out now and then I'm finding out reactively instead of proactively. If I would have known on the first date of hire that the HVAC system was an issue due to wiring problems, and some structural leaks I would have made preparations to remedy the problem. So, I am just now getting leaky roofs repaired. And that really didn't set the tone for one of our teachers in the classroom. They did the roof in one of the teachers' classroom, but they had to do the whole room to fix the problem to avoid the leak because of the way the building is structured. I have a flat roof so when it rains water stands in one area and then it leaks down the sides of the outer classrooms so.....

Principal of Sunrise Elementary

I think basic things, common sense things, I'm fine with, but as far as sometimes the plumbing, heating and just being female are so bad. I do think there are some things about the physical plant that I can use more training on. I mean, I'm being very

honest with you with that and I would like to stay on top of things and that is important to me. I think the more years I've been here, the more I learned those things, but I have really not had training in that area.

Principal of Lee Road Elementary

Yes. I think so.

Principal of Grant Elementary

I was not trained by any other county official, but prior to coming here as an assistant principal I thought I was properly trained. Prior to that, I was at a very old facility as a classroom teacher and grade level chair person, sometimes taking on the role as leader when the principal and assistant principal were out of the building. Not official training, but I would say I feel strong in that area.

In reference to this interview question most principals elaborated on what seemed to be hands on knowledge or common sense that was applied in the area of school facilities. Although not so convincing at times, half of the elementary principals felt that they had been properly trained in the area of school facilities. Honeyman (1999) reported that 25 million students attend schools that reported at least one facility problem, which varied from leaky roofs, asbestos issues, plumbing problems or lack of space.

10. Since your appointment as the principal of (School) in (County), have you been offered training specifically related to school facilities and maintenance?

Principal of Alphabet Elementary

Now as far as formal training like sitting down taking a course and them telling us what we need to do, no. But, as far as consultation when things go wrong, yes. They

will tell me what needs to happen, but so we don't have money in the budget so they patch it up for the time being.

Principal of Sunrise Elementary

Training has been offered for our custodial staff and I have been invited to attend those. But I went to a short part of that. But anything specifically for administrators I can't say I have.

Principal of Lee Road Elementary

Yes. We have been offered training and the facilities director is constantly giving us updates on energy. We're given monthly statements of power bills, gas bills; etc. They're always providing us maintenance or energy tips if you will. Also, the custodians are provided training as well when needed to maintain the building as well.

Principal of Grant Elementary

No. It may have been a part of some other training, but the main objectives of those trainings were not particularly for facilities. It became a sub-topic.

Most of the principals responded that they had not being offered training in the area of school facilities by their current school district. This is very important because in order to improve facilities conditions school leaders must understand how to assess their buildings to ensure that they are appropriate for learning. School principals have the responsibility of ensuring that the infrastructure factors are emphasized and met as it relates to the quality and standards of educational facilities (Agron, 2000).

11. Would you agree that graduate students earning leadership degrees could benefit from taking additional courses related to school facilities and maintenance?

Principal of Alphabet Elementary

Yes. I think that would help a lot with the principal organizing a time table for the custodians, the "look fors", what to do on a daily basis because I'm finding out thru experience as oppose to coming in as the principal knowing that these are the things I need to look for as it relates to school facilities.

Principal of Sunrise Elementary

I think it would be excellent because now that I have been in the position and that is one thing that I felt that I was weak in just because I have received training previously. But, any administrator is going to have some aspect of supervision or responsibility for the physical plant and we do need to know that for security reasons, for safety. I mean we do. So yes, I think it would be very important.

Principal of Lee Road Elementary

Absolutely.

Principal of Grant Elementary

Absolutely! I think that would be a huge benefit. For example as a classroom teacher a lot of the things that we took in undergraduate studies did not necessarily prepare us. Like for example teaching reading. Undergraduate courses usually require one or two and you are expected to go into a classroom and teach reading. Teaching reading is a very difficult art and if you have not been trained properly, you cannot facilitate that process. And as administrator if there were more courses along the lines of facilities, I think that even in the older facilities we would all feel much better. Being

honest with you a lot of the things here I had to find out on my own through experimentation (laughing). When I got those 3am phone calls with alarms going off in the building and I find out that there are actually four alarms in this building. And some of them had not been disconnected. Okay. And some of it has been experimentation. Last year I did a lot of self teaching after those 3am phone calls.

Although No Child Left Behind continues to raises accountability for student performance, there is no mention of a quality standard that should be in place as it relates to school facilities in any of the mandates (Kennedy & Agron, 2004). The consensus from the elementary principals clearly indicates that more information presented in graduate courses in the area of school facilities would be very beneficial to potential school leaders who are charged with meeting these new standards.

Middle School Principals Interviews

1. How many clock hours of training have you received in the area of school facilities upkeep and maintenance?

Principal of Monument Middle School

Here at this school district or overall? If I were to condense them I would say overall 24 clock hours including graduate coursework and on the job training in my last school district facilitated by my co-principal.

Principal of Washington Middle School

Mr. Barbra, I mean in all my years education I can't think of a course that I had in upkeep and maintenance of a building. I would have to say none.

Principal of Granite Middle School

(Laughing) You don't have range to choose from? I would say formal training, hours? Maybe 15 to 20 formal. But, informal, I mean on the job training, I mean when you first

become an administrator you have to handle facility type issues. So, from a non-standard standpoint you could say infinite number of hours.

Principal of Clemson Middle School

Let's say probably about 40 hours.

With the exception of the principal of Washington middle school who informed me that had no hours of training in the area of school facilities, most of the middle school participants described the clock hours as part of their graduate studies coursework or on the job training. In discussion of this interview question one thing that came up more than once was the fact that the respondents learned more about facilities while they worked as school principals as oppose to gaining knowledge prior to becoming a principal. Besides the on the job training, no formal training had occurred.

- 2. During your educational administration preparatory program how many courses did you complete in the area of school facilities? And how have employed the learned concepts to ensuring the best school facilities conditions possible?**

Principal of Monument Middle

I would say 1, back up, one course in the Master's program pertaining to facilities maintenance and then in my post graduate a course dedicated to overall school facilities. So, I would say two courses total. The building is already there and so you learn how to best use the space. Looking at personal space, classroom space, and space to facilitate instructional activities. For example a science room needs to have space for a lab experience or lab work or they need to be able to go into another room for the science labs. But, if it is going to be done in the classroom the area needs to be sufficient to accommodate that type of activity. On the other hand a remedial reading class which might have a small number of students will not need such or as much space. So we look

at that. For example, if you have a band program, you need a large area of room to accommodate a large number of students at one time and the acoustics need to be right in order to conduct that activity or you're going to have sound resonating from all over the place and you don't want that interrupting instruction. Ah, so we look at that. And the other is since I been at this school and the school I came from previously we have rooms that have collapsible walls. That's good and also a thing of concern. The walls, if not maintained properly will have gaps that causes one room to be disrupted by the class adjacent to that classroom and so we have to watch that. We have rooms in the building right now that have those gaps and we are working to resolve those right away. And another thing that we look at and put to practice is the flow of the school area. Hallways needs one way, if it's two way, you need to make sure that you keep students in the proper path. If you would like I can take you down so you can see we have put down strips of tape down the hallway to keep students on the right side of the hallway.

Principal of Washington Middle

I completed one course. What I've employed as a result of that particular class was budget.

Principal of Granite Middle

I would say two

Principal of Clemson Middle

I did not. I did complete one course in school facilities and budgeting.

The average number of school facilities college courses completed by the middle school principals was one. An additional observation was that two principals in fact recalled having school facilities concepts discussed in required budgeting courses. The

relationship between facilities and budgeting has been argued since the first inequality lawsuit in Indiana, which occurred in 1859(Tennessee Advisory Commission, 2003).

3. Is school facilities maintenance a delegated duty for another school level administrator or is this a duty that you choose to see after?

Principal of Monument Middle

Currently, I keep that duty myself and I have not decided yet whether to delegate that duty to one of my assistant principals given all the responsibilities that I have assigned them I think it's fair that I keep this one at least for now. Where I came from another administrator had that duty or responsibility and you had to be a co-principal and he was senior to me, but I did see in a previous school district I saw that a assistant principal had responsibility for facilities maintenance.

Principal of Washington Middle

This is another duty that a school level administrator oversees.

Principal of Granite Middle

It's something that's delegated to one of my administrators. But, you know it ultimately comes back to me. I mean if there is a problem or issue that administrator is going to get in contact with me. Also, our lead custodian who is excellent will get with me with any concerns or issues that he needs to make me aware of.

Principal of Clemson Middle

It is, it is. We have someone designated for that that works very closely with the principal.

Seventy-five percent of the principals stated that school facilities were a delegated duty for another school level administrator. The principals also alluded to the fact that at the end of the day all responsibility for the condition of the building and facilities rests

with them. According to Agron (2000), school principals have the responsibility of ensuring that the infrastructure factors are emphasized and met as it relates to the quality and standards of educational facilities.

- 4. How would you rate the impact of school facilities conditions on academic achievement on a relative scale of 1 to 10? Explain. With 1 being the lowest rating possible and 10 being the highest rating possible for school facilities impact on academic achievement.**

Principal of Monument Middle

I would say a short answer would be 8. And I would caveat that, it varies. For example if the heat was to go out in this building there would be incidence of cold weather where there would be very little learning going. But we could keep students in the classrooms, we could do all kinds of things but students, the environment would not be conducive to learning. There might be some learning going on, but it would be hard to gauge.

Remember Maslow's Hierarchy of Needs? The student would be cold and uncomfortable, the teacher would be cold and uncomfortable and there would be very little instruction, learning going on. If its hot and air conditioning goes out, you got the same kind of problem, except its the hot weather months. If you have some type of strange odor coming from the ventilation system, that too would impact the students and the staff. So yeah, I say it's an 8 and in some cases a 10. Some cases being lower.

Principal of Washington Middle

I would, I would give it a ten. I think along the same line as you want your teachers to do their best and in reference to curriculum and instruction. Your building should be clean and pristine as possible because the kids have to and teachers have to work in that facility and be taught in that facility. And it's important that the facilities level be deemed just as important as instruction and what we do in the classrooms.

Principal of Granite Middle

I would say two.

Principal of Clemson Middle

I would rate it a 9 because when kids come into a clean building and it looks safe it affects how the faculty and staff feels about the building that they are working in.

Whether things are in order and as for the kids it feels better and you can perform better.

On average principal's rated the school facilities conditions impacting academic achievement a 7 on a scale from 1 to 10. With the exception of the principal of Granite Middle the rest of the principals believed that school facilities greatly impact academic achievement. It is very important to the principals that the right message is sent when students entered the schools daily.

5. In what ways do you view school facilities conditions impacting academic achievement within schools? Explain.

Principal of Monument Middle

There is an impact. I don't believe it is currently detrimental to learning, but it definitely affects our efficiency to some degree as a staff and student body. For example, the roof in this building leaks in several areas, so if we have a down pour we're going to have leaks in several areas. So we have to get trash cans out so we don't get flooded. So that is an inconvenience for people to walk around. It's in the hallways, so that kind of impedes traffic. That's why I said efficiency. We have a couple leaks, one in the gym and in the teachers office. That affects the activities that go on in there and that affects the teacher's ability to use her work station. So, I can't gauge it but it does affect it.

Principal of Washington Middle

Very important, very important. And the reason why I say that is because it gives kids. If kids feel good about their environment, then in my mind, it's just my belief that if they feel good about where they are, they are going to function a lot better in the classroom. The facilities as I said earlier, if a student comes into our school and if the floors are not shiny, if things are not clean, if the bathrooms are not clean, our whole presentation of our school, when they come into the building and it looks like it has not been well kept, then that's the way they are going to conduct themselves. That's the way they are going to present themselves in the classroom. Unkept instructionally. They're going to say, "well, I do this half-way". Again, when I'm in a well kept facility, there's a certain level of expectation. Just by mere fact that you're in this facility, which I think lends itself and carries into the classroom. That expectation is that the building is clean, we expect that it is well maintained, look good and we expect you to do your best inside the classroom.

Principal of Granite Middle

One of things that we always do at the beginning of the school year when we have our class meetings and meet with each grade level is talk about having pride in the school and pride in the building. If there are problems that you see, you know if someone has added graffiti on the wall or done something in the restroom. You know? Take pride in this building as if you were taking pride in your home and the thing is, we have a very clean building here. When individuals come in and walk this building, they are like, "this building is in excellent shape". And I think the kids really take pride in the building that

we have here and I think that pride rolls off into the classroom because we try to provide nice things for our students so that a good climate for academic achievement is presented.

Principal of Clemson Middle

Like I said earlier when faculty and staff come into a building that's clean, the lights are working, the restrooms are clean, that sets the whole pace for the climate of your school and the type of school that you have. You feel a lot better and the students perform better if the classroom is clean, and if the restrooms are clean. That sets the stage for beginning to accept whatever the teacher is about to deliver instructionally.

The principals described school facilities impacting academic achievement mostly in the area of setting the tone, creating pride, making a statement of cleanliness and providing an excellent environment that would allow students to feel good and therefore continue to strive academically. The principals also emphasized that when areas of school facilities are inadequate, they can affect the goals of the school program daily. O'Neill and Oates (2000) concluded that when teachers are allowed to teach and facilitate learning in environments that are well maintained and healthy, they are able to be more effective, which inevitably affects the academic achievement of students being taught at that particular school.

6. At this point do you feel as though school facilities maintenance is important at the county level? Explain.

Principal of Monument Middle

Oh yes. Their response to our work orders is within reason. The roof for example, it is very, very important, but the roof has been on a five year plan and it is almost that time and I hope we can get to it. There have been other work orders that I submitted. There was a window scratched before I got here. Someone scratched a vulgar term and I said

“hey” this window has not been replaced, submitted a work order and they replaced it. So that kind of response is coming about. The one thing that all school districts and schools need to look at is the number of maintenance personnel working. Currently we have a very small number in here and that impacts on how soon they can cut the grass out back of the school. I had to hire a contractor for the front. It affects like if I need to change a key lock, it affects how soon they respond to that. So there are delays there. They’re working at it. Those are issues that can and do develop.

Principal of Washington Middle

For our county I think it’s important, but I think it’s a different type of importance. I don’t, it’s important for upkeep. Not so much, I think it’s more reactive at the county level than proactive.

Principal of Granite Middle

Oh, no doubt! No doubt! Because that’s where you receive your funding. You know there’s only so much money that I can raise as a middle school principal and I can always say, “hey”, we need this or we need more computers, we need new furniture or we need additional paint or we need an air conditioning unit in the gymnasium. I can’t raise that type of money. The county office has to come in and look at the needs and you also have to express why this is important. You just can’t say hey, we need this or we need that. It has to be we need this because of this. And so yes, it’s very important at the county level.

Principal of Clemson Middle

I think it’s very important at our county level and it’s very well attended to, in that we have a person designated for that and there to this point there has not been a need that I have discussed with that person that has not been met.

In analysis of responses to this interview question, most principals felt that school facilities was a priority at their county and cited many things that demonstrated their belief. These things included the pace at which work orders were completed, how items related to facilities are placed on a rotating schedule yearly to ensure regular maintenance and attention is given to each school building within the respective districts. Honeyman (1999) felt that state legislative bodies and school administrators should renew a commitment to providing a good education and a safe learning environment where learning can take place.

7. How would you rate your school in the area school facilities on a relative scale from 1 to 10? Explain.

Principal of Monument Middle

Eight. That's because I control my custodians here and if you go out you'll see that they do a very good job. My teachers need to be more aware of the things that can help to maintain the rooms from getting, becoming "pig sty's" and we're getting better at that. But, we're looking at this as well. As far as work orders, I think we are being accurate and timely as we can be. They respond from a school district level as much as they can. Can it be better? (Laughing) of course it can.

Principal of Washington Middle

I would give it probably about a seven, about a seven.

Principal of Granite Middle

I would say an 8.5 or a 9. And I'm saying that because you know the school is 15 years old and there's certain aspects that you know I would like to change, but you know because it was constructed in 1990 that is not the case. So, but overall we have a wonderful facility here for our kids.

Principal of Clemson

The core facilities were built for 900 students and at this point we are over that so it's a little bit hard on the core facilities and the county level administrators understand and this summer we will be adding on 10 additional classrooms because of the way that the county is growing. At this point, I think the county is doing an outstanding job with keeping things taking care of. The lighting, the painting, making sure that it is a safe and orderly environment for kids to be in.

On average the middle school principals rated the overall school facilities at their respective schools an 8 on a relative scale from 1 to 10. This was unlike the national survey conducted by the American Association of School Administrators, which administrators concluded that 74 percent of school facilities should be replaced or repaired immediately and an additional 12 percent were identified as inadequate places of learning (Frazier, 1993).

8. Explain what you would describe as the most important school facility component affecting the educational program within your school?

Principal of Monument Middle

Lighting. I look at lighting, water and HVAC as the three most critical facilities services that you need because without it lighting you can't see. This building in some classrooms you can see due to the natural lighting, but in other classrooms natural lighting may not be available. HVAC, anything related to that is going to affect the efficiency and the effectiveness of instructional services. And the water, if you don't have water you can't use the toilets, you can drink water and it creates a problem all around.

Principal of Washington Middle

I would say lighting, heating and air. I think its comfort. I think lighting and heating and air both do these things. If the lighting isn't right then students can become uncomfortable. If it's too hot or too cold, the students can become uncomfortable and they worry about that lack of comfort rather than focusing on the instruction.

Principal of Granite Middle

I would say, hmmm. I think I would say the size of the building is sufficient for the number of students we have at this time. So in stating that, I would have to say the heating and air units are just absolutely vital. Because that is where you look at the general comfort of the students and teachers in the building. Is the temperature in the classrooms and the temperature in the building right for comfort?

Principal of Clemson Middle

I think it's a culmination of all of the components. Because even if you have a warm classroom, but the lights are not working you know? I think all those things go hand and hand. Of course you would have to have cafeteria facilities that are able to prepare, and get food ready, places for students to sit, restrooms should be available for them to go to. So, the dynamics of all of that is not taking one piece, but putting all those things in culmination makes for a dynamic facility.

In analysis of this question the most noticeable thing was that all of the middle school principals felt that HVAC, and lighting was very important. The principal of Clemson Middle discussed the notion that all of the components must be adequate in order to ensure the learning and teaching environment was possible for all parties. In a study by Peccolo (1992), which examined student performance and work skills on certain

tasks, Peccolo found that there was a significant relationship between an ideal room temperature between 70 to 74 degrees and the amount of work completed by students. As it relates to learning and student achievement Dunn (1985) emphasized the importance of lighting being included as an active element of the total educational environment. Dunn found that good lighting in schools contributes psychologically to the learning environment.

9. Do you feel that you have been properly trained in order to determine when school facilities conditions are in need of improvement? Explain.

Principal of Monument Middle

I believe that I have and I believe that my background in the military. Maintenance was an area no matter what specialty you had that everyone was trained in. In some cases this would be buildings, equipment, vehicles and so you have to learn about that and that helped me. I credit my post graduate professor Dr. Yager, with teaching me more about and giving me an in-depth understanding about school facility construction and the process you go through in order to build a school building. Can I learn more? Sure (laughing).

Principal of Washington Middle

No. I think if it had not been for my school level administrator who's overseeing my, the facilities, if he not had the interest or the understanding of what needs to be done we would be lacking. From my expertise the school would be lacking. Due to the fact that he has taken this and has that expertise and wants to have that expertise and has studied what makes facilities what they should be like and what needs to be fixed. I've been fortunate to have someone on staff that understands this whole protocol. I have not had that training. The only thing that I would be is reactive. In the school saying "oops that needs

to be fixed”, rather than that needs to be fixed, but how can we make that better, we need carpet, but what color carpet do we need to make the instructional environment better. I would not know how to resolve this. So to answer your question no I have not been and not felt really comfortable with facilities, but have been fortunate that I have an administrator on staff that does take it and does understand what needs to be done and what needs to be in order to be successful with it. So....

Principal of Granite Middle

No. And I think I can state that about a number of different things in this job. I think I can say the same thing about budgeting, I think I can say the same thing about curriculum issues. It never truly prepares you for the job. I mean you learn on the job. So and that’s not a knock on any of the institutions, but I think any administrator you know can say, “Hey, I was not fully prepared for this, or that class didn’t teach me about that”. You have to as I say, jump off into the matrix and find out for yourself.

Principal of Clemson Middle

Ummm. I have been trained, but some of that came from being a classroom teacher. Being at that ground level you know what is needed for a classroom to function, in order for a school to function. So a lot of that is innate ability to be able to trouble-shoot to be able to see what needs to be done.

Most of the middle school principals discussed their training in the terms of hands on experience as opposed to be being trained in a formalized fashion. The responses demonstrated that the middle school principals believe that they have not been properly trained in the area of school facilities. But the experience that has been gained has been do so over time through trial and error on the job. The principal of Granite Middle

elaborated with the idea that in the profession of leadership at the school level, that there in fact, are several areas that formalized training is not given such as budgeting.

10. Since your appointment as the principal of (School) in (County), have been offered training specifically related to school facilities and maintenance?

Principal of Monument Middle

My impression right now is that there needs to more training by the county in relation to school facilities concepts. Can I make an additional comment? I think this is where I believe assigning an assistant principal or delegating that may come into play. The sooner you start being exposed to facilities maintenance as a responsibility the sooner you're going to start learning as instructional educational leader. So that when you do become a principal there will be a very small need for a refresher, there should not be. I think that's the view here, if you're a principal you're already had training and you should be able to work the building and understand the building facilities concept enough to carry out your duties and responsibilities.

Principal of Washington Middle

No. I haven't.

Principal of Granite Middle

No.

Principal of Clemson Middle

No. I have not and the reason for that would be fruitless because there is a director for facilities. So when there is an issue that arises I have access to him and he comes out immediately or I talk to him over the telephone and that keeps me from having to have that type of training. As far as facilities are concern the needs are met.

Although No Child Left Behind continuously raises the accountability for student performance, there is no mention of a quality standard that should be in place as it relates to school facilities in any of the mandates (Kennedy & Agron, 2004). In analysis of this interview question, it seems very clear from the principal' responses that at the county level, across multiple districts there has not been a concerted effort to increase the competency of principals in the area of school facilities.

11. Would you agree that graduate students earning leadership degrees could benefit from taking additional courses related to school facilities and maintenance?

Principal of Monument Middle

Yes. I think there should be one dedicated to facilities and facilities maintenance in the work that is required to get your principal certificate and there should be two separate courses at the graduate levels. One on facilities maintenance and all that, and another one dealing with the process of building a school, purchasing the land. That's a very complex process. The course that I took covered all of that, but I felt if they had broken it up it would have been far better.

Principal of Washington Middle

Absolutely. And the reason why I say that is because I'm sure that studies are being done which ask, when floors are shiny, or if things are picked up, how does that affect the learning environment? I don't know, that just my guess, everything I've told you is just my guess and why I think it needs to be important. But it will be important to know that so that I can be conscious of that and facilitate that to ensure it was in place. Right now I have had no training or have no understanding beside I like it to be clean personally. So...

Principal of Granite Middle

Oh yeah. I believe that they could, but just being a realist about the situation there are so many other things that one would need to have an understanding or grasp. I mean I'm sure that I could have another doctoral student come in and bring up information about peer mediation in the middle school. Is this a necessity? Could this not be situation that could cut down on discipline referrals and increase academic climate of your school. So there's a number of different things that one could say would benefit individuals in the leadership position in this country.

Principal of Clemson Middle

I think they could if there is not a director there. If it is a small system and that principal is pretty much on their own in making sure all the lights are burning, making sure the stove is burning in the cafeteria. I think that is very, very important because that principal would have to do a routine PM or preventive maintenance and walk thru's to ensure that all of this stuff, not only to see if it's working, but what I'm I going to do to trouble-shoot and who am I going to talk to in order to get these things ready for my students.

In analysis of this interview question, the participants strongly agreed that graduate students earning leadership degrees could benefit from taking additional courses related to school facilities and maintenance. These responses indicate that the principals feel it is necessary to understand certain aspects of school facilities such as construction, budgeting, and regular maintenance in order to better provide an adequate learning environment for all students. School principals have the responsibility of ensuring that the infrastructure factors are emphasized and met and it relates to the quality and standards of educational facilities (Agron, 2000).

High School Principals Interviews

1. How many clock hours of training have you received in the area of school facilities upkeep and maintenance?

Principal of Newside High

None.

Principal of Indian Creek High

Well, probably I would have to say 50 to 60 hours.

Principal of East High

Ha, ha, ha (Laughing). Formal training? Ha, ha, ha (Laughing). One class in graduate school obviously working on leadership certification, but as far as just instruction I have probably gathered more through the years of listening to people who are in charge of plant facilities at the county level and our own custodians who have a pretty good idea about some of those things.

Principal of Laney High

None, that I'm aware of.

Half of the participating high school principals reported taking no college courses during their educational preparatory programs. Those indicating that they had taken courses in college indicated that the courses did not actually cover a vast amount of elements related to school facilities, but instead focused on building and design of schools. As noted by the Tennessee Advisory Commission (2003) it is important that educational leaders and politicians are aware of the relationship between school facilities and student learning so that positive efforts can be made to provide the most conducive learning environments.

2. During your educational administration preparatory program how many courses did you complete in the area of school facilities? And how have employed the learned concepts to ensuring the best school facilities conditions possible?

Principal of Newside High

Probably less than one if that's a number that I can give. You know a lot of what they did, they taught you a lot about leadership and we didn't get a lot on facilities management or facilities expansion. Any of those types of things. Most of what you do is common sense and you have to explore on your own, you read about it and find out what is best for your school.

Principal of Indian Creek High

I have taken three courses and those span from the Master's and the Specialist program. What I learned in these courses first of all allows me ensure that we have a safe environment. What was taught in those courses also allows us to make sure that we have a knowledgeable custodial staff in place, which helps to ensure the cleanliness of the school.

Principal of East High

Well, really the concept that we learned there were along the lines of school design and rather than actual maintenance of the facility. From time to time I have used what I learned in school design when we built gyms or when we added extra wings to the building to tell the architects or our county people when they ready are to build the building what we were looking for, what would be more convenient, those kinds of things. But, as far as maintenance they rarely cover a lot of maintenance items or custodial items when you have college classes.

Principal of Laney High

None

3. Is school facilities maintenance a delegated duty for another school level administrator or is this a duty that you choose to see after?

Principal of Newside High

I have delegated this duty one of the assistant principals and he deals with the maintenance staff, but I still oversee it. If there is an issue, a big issue and it's an employee and their not keeping up and doing their part then I step in with him and that's when I go in and put the hammer down. That's my job right there! But, when you walk in and if something doesn't look right and needs to be fixed, we all take part to it and they all take equal responsibility to it. If there is a spill they go out, find somebody to take care of it or take care of it themselves, if there's a crack in the wall they report it. All those type of things everyone is equally responsible, but I do put one person in charge. But, we do have an overall facilities manager for the school. At the high school level here, there is a gentleman that is paid, who oversees all of the custodial staff completely.

Principal of Indian Creek High

No, it is a duty that has been delegated to one of the assistant principal's and he has much of the responsibilities for the maintenance of facilities and so forth.

Principal of East High

No. I do school maintenance here and we have a full-time maintenance person as well as a custodial staff.

Principal of Laney High

It is a delegated duty assigned to another assistant principal.

Seventy-five percent of participating high school principals indicated that school facilities maintenance was a duty delegated to other school level administrators or maintenance staff.

- 4. How would you rate the impact of school facilities conditions on academic achievement on a relative scale of 1 to 10? Explain. With 1 being the lowest rating possible and 10 being the highest rating possible for school facilities impact on academic achievement.**

Principal of Newside High

Well, along with positive student discipline, that's my first and foremost, above curriculum, I believe in positive student discipline. But, if you bring in facilities as an impact I would say a seven out of ten. If you don't have hall wide enough for kids to pass through they are more likely going bump into each other, which creates fights occasionally. It creates a problem for curriculum and creates a problem for discipline. The same kind of thing is appropriate lighting in the classrooms. You know I had an assistant principal with no windows in an office, and I had an assistant principal in a little small office. I'll show you her office on the way out, but she was curriculum and I just couldn't see her doing all the testing materials in a box all day long, so I moved her into a bigger office, gave her some window space and it allowed her to feel more comfortable with the work she does all day. None of us like being caged up all day.... and sometimes you have to get out of there. Absolutely, absolutely and no one can be expected to work that way.

Principal of Indian Creek High

Well, I would put it right up there with a 10. It's very important because the way that your school building looks that's the impression first that student's will receive once they enter. Also the community when they are driving by, as well as parents when they come

in for different conferences and programs. So you want to make sure that your facility is in a clean and safe manner, which demonstrates pride about your school. The students will usually have that same type of positive school pride.

Principal of East High

I would say probably with ten being the highest I would say about a 6 or 7. I think that having a clean school, everything operating properly certainly takes a little bit of the “heat off” I guess you might say (laughing) of students and teachers when they feel like they are coming into a clean, secure place to study.

Principal of Laney High

Seven.

In analysis of this particular interview question, the researcher found that on average the high school principals rated the impact of school facilities on academic achievement to be a seven on a scale of one to ten. The principal of Indian Creek High rated the impact of school facilities on academic achievement a ten on the scale. According to Berner (1993) in a study comparing achievement results as they relate to school facility conditions, Edwards concluded that students who attended schools with excellent facility conditions scored higher on achievement tests than students attending schools with poor facility conditions.

5. In what ways do you view school facilities conditions impacting academic achievement within schools? Explain.

Principal of Newside High

It ranks right up there. I’ll give you an example, if you have an overload of teachers at the school, and they don’t have classrooms to conduct their classes, then they float. You don’t give them the classroom space; I don’t believe you can optimize their teaching in

the classroom. If they're going to carry their books from place to place and all those things there is absolutely no way. The first thing a new teacher is going to ask you is, "when I am going to get my own classroom?" They're never going to feel comfortable in someone else's classroom. How, basically how does it affect student achievement? I think based on our size, our facilities are okay and makes things manageable. We were built as a transitional school. And based on core facilities we can only hold about 1400 students. That means our gym size is a certain size, we can't span outside of the cafeteria so that means we can only feed so many. So therefore it is suitable for our school, but if you were to expand it by two to three hundred students it would definitely offset the entire process. It would offset the curriculum, offset the teacher base, how they feel here. I think it would negatively affect the entire climate. You have to build to your population.

Principal of Indian Creek High

Again, I feel that a person can probably think better when they are taking a test if they know that the ventilation is properly taken care of, you have proper lighting, and the smell that is pleasant. So that has an extremely important effect on the academic environment. If a student is in the classroom and the lights are flickering and some of the light bulbs out, they probably can't see well, if smells are so atrocious that they can't think and I mean the ventilation is not proper they can get sick. I mean it's hard learning, it's hard to think, it's hard to do your best academically and that's very important. Basically, I know it's very important here when it impacts achievement is making sure we have a clean cafeteria because our cafeteria is used as a place in the morning for the students to come before they go to class. Also, that's our area that they eat in and also we

use that area for testing and also we use that area some for classrooms when needed.

Also we do programs and mostly all of our programs are done in that area. So that's one of the main key, highlighted areas. So cleanliness is very important. We want to make sure that floors, the tables are clean, we have all the lighting there available and so that's very important. The students start off in that area and they mostly leave through that area going home. So that's one area that we have to make sure that we have everything clean.

Principal of East High

Well, my own observations I think new schools being fresh and new probably has some impact on it, however it would be hard to say if that has an impact on it or if it has a new student population where they're building a tradition you might say when they come from other schools. That's very difficult to say, but I know from a faculty standpoint and an administrator standpoint it's really great to get into a fresh building or a well kept building makes you feel better about what you're doing. I think it builds pride in your student body as far as where they go to study and where they go to work. I think it also builds pride in your faculty. All of which transfers and you get better work of them if they feel good about where they are. That's the reason I say it does have an impact and to what extent it has an impact that's what you're studying.

Principal of Laney High

Very poor facilities depreciate student pride and you don't get good effort from students in very poor facilities. In brand new facilities students have a lot more school spirit, school pride and generally make a better effort. But, the bottom line, I am firmly convinced that student achievement is directly related to the performance of the teachers

and what's going in classrooms. Teachers do a better job in good facilities than poor facilities. I would say yes.

In a study conducted by Schapiro (2001), which examined 1,050 United States teachers' opinions regarding the relationship between interior design and academic performance, teachers from all grade levels and geographic regions, recognized and understood that clean, well designed school facilities indeed enhanced their ability to teach and their students' ability to learn. In response to this particular interview question high school principals explained a number of ways that school facilities impacts academic achievement within schools. This included being able to make teachers feel appreciated by ensuring that they had their own classrooms, and developing a sense of pride by teachers as a result of providing good school facilities.

6. At this point do you feel as though school facilities maintenance is important at the county level? Explain.

Principal of Newside High

Absolutely. I have a superintendent who walks by here and if the grass is hanging over out here(referencing grass out front), he'll tell you. My thing is I actually set my maintenance people up on a schedule. And they, there's a checklist of things they have to do every single day. Because I know I have a boss at the upper level and will call me on everything he sees. He'll walk in an office and he'll go like that, (dusting action) and if there is dust he'll let you know about it. And he believes in that cleanliness. You know the saying; cleanliness is the only thing close to Godliness. You walk in a school and you smell urine when you walk by a restroom, you have some issues in that school building. It really is, and it starts from the top down, and you know what your boss expects, and

you guys know what I expect. You can walk thru the school and you're going to find a pretty clean high school for the amount of kids we have.

Principal of Indian Creek High

I do, I do feel like it's important at the county level. In our county they have really made exerted effort to make sure that every school has equal facility equipment. Now, we have the vacuums where you ride them throughout the school and it does the water suction and so forth. All the schools now have auditoriums that they're building, new gyms and so forth. And then all of them each, each year I must say, they rotate to a different high school and go through the school and make sure that it has a new paint lift, they go through tile and carpet. And so we just had ours two years ago so we should be coming back around in another year and a half. Everything still looks pretty fresh and new.

Principal of East High

Yes. Absolutely, they have always been. I've been an administrator for eleven and a teacher here thirteen years before that, but they have really always tried to take care of the facilities. It has fluctuated from time to time with the budget about how much they could do, but they have always put a great importance on our operation and maintenance and those kinds of things. For the most part our buildings are well kept even some of the older buildings.

Principal of Laney High

I would say yes.

In analysis of this interview question the principals responded in a way that suggest they believed that school facilities maintenance was important at the respective county levels in which they worked. The principals discussed the speed at which facilities issues

were dealt with and the efforts of county facilities directors to work in a proactive manner as opposed to a reactive manner. This is very important as it relates to the result of the litigation in Arizona in 1994, where the Arizona Supreme Court agreed that the under funding for forty poor school districts of the state's one hundred and twenty-two school districts violated the state requirements for providing the facilities and equipment necessary to allow students to meet state competency requirements (Tennessee Advisory Commission, 2003).

7. How would you rate your school in the area school facilities on a relative scale from 1 to 10? Explain.

Principal of Newside High

In comparison to other schools around us? And again going along with our size we're adequate. We're a seven. You compare it to the new high school, which is going to go in we're probably a five. You compare it to the Brookwoods, Northcross and those places and look at what they have and what we do not have here. You know? I'll say we're back at a five. There's a lot that we have and lot that we don't have.

Principal of Indian Creek High

Well, that's a real heard question for me because I have to go personal. Because my mother, she grew up as a housekeeper in hotels and she eventually worked her way up to being the executive house cleaner. Then she started her own janitorial business, so I had to work the janitorial business growing up so I know about cleaning, I understand about going into different businesses and what they're expecting because of my mom starting her own business. So, to me here at this school, I feel we still need improvement in certain areas. It's not the cleanliness that my mom taught me or showed me when she would go into the buildings that she had contracts with like the Georgia Powers and so

forth. And even though people don't want to consider school as a business, but in reality I'm sure you know that it has certain business like characteristics. And so I feel that we need to up the "ante" a tad bit here so I would say a six. A six.

Principal of East High

Judging from the other systems that I've taught in I would say this county probably rates around an 8. As far as being up to date facilities, maintaining a good, clean working atmosphere, everything was done pretty well.

Principal of Laney High

It's a 10.

7. Explain what you would describe as the most important school facility component affecting the educational program within your school?

Principal of Newside High

Most people would say lighting and plumbing, but I would say size. You have to have adequate space to feed, to house, to walk, to talk. I mean you can't put 100 kids in the bathroom and get it done in the appropriate amount of time. This is where size does matter.

Principal of Indian Creek High

I think most definitely the plumbing, the plumbing system like you said. Good flowing water throughout the school, the restrooms, the chemistry labs. Our county is known for excellence. You know? And you can go on any website and see that we have some of the highest test scores in the state of Georgia. You look at Georgia High School Graduation Test and we're above the national average. And one thing is because of making sure that the facilities are taken care of and I would say plumbing. You gotta have flowing water, you have to have those water fountains working, the students have to be able to go to

those chemistry labs and know that they can do those things and the teachers expect the same thing so that they can teach.

Principal of East High

Well maybe it's just because my building has more trouble with than anything else.

(Laughing). But, I would HVAC systems make a great deal of difference in the learning of the kids. Whether it's air conditioning or heating that go in and out (Laughing). I think that has been the number one thing. Secondly, I would say the lighting is a big deal. I know we've had to do some lighting upgrades in certain areas of the building because the lighting was poor and that's just been over the last five to ten years. So these are things that were not done well when they built the building. We've changed some of that. I think the next thing probably that effects the building would be, well I would probably put this second instead of lighting. Secondly, would be restrooms that are clean and work well. That's make a big deal for everyone in the building and third I would put lighting.

Principal of Laney High

The heating, ventilation and air conditioning probably would have more impact on teaching and learning than anything.

In an analysis of responses to this interview question, half of the participating high school principals believed that HVAC was the most important school facilities component affecting the educational program within their particular schools. Kaufman (1984) investigated the effects of the classroom environments with emphasis on student "stressors". Some of these "stressors" included performance pressure, academic criticism, and redirection of unwanted behaviors. One of the stressors that became obvious to Kaufman was climate conditions with emphasis on extremely hot temperatures

and humidity in the classroom. Kaufman believed that the extremely hot learning environment acted as a stressor and therefore affected a student's ability to learn and recall taught information. In conclusion of the study Kaufman believed that educators should examine students and the things that possibly cause them stress while in schools.

8. Do you feel that you have been properly trained in order to determine when school facilities conditions are in need of improvement? Explain.

Principal of Newside High

No. It's really not afforded to you and I think and I'll say it this way. Again our system has a good hierarchy of that. I have facilities manager here at the school that reports to myself and the assistant principal. He also reports to facilities manager at the building level and that facilities manager also reports to a building level service manager. So, I mean there is a good hierarchy of empowerment of those people that take care of those items for you. So you don't have to be trained and bring in, they'll give you anything you need. Anything I've ever asked for in this county I've gotten it within reason.

Principal of Indian Creek High

I don't think that I have been properly trained through the county, it just so happen that I grew up in the environment of understanding about cleanliness and facilities because like I said my mother, and I had to go many times to take care of buildings at downtown Georgia Power. She had contracts there, she had CNN, parts of CNN there and so I understood it from there. So I guess I was a little reluctant to feel that I need more training in the school. But, now with this interview you have helped me to see that I probably need to look closer at that and see are we staying on top of the new trends when it comes to a facility and the impact of student learning and so forth.

Principal of East High

Probably not. I think everyone has previous experiences, but as far as formal training I don't think we have had enough of that. Even in this county and this school system we have training for the principals maybe an hour every other year or every third year or something like that just to bring us to speed on some new things that their doing, but as far as formal training no. I think the younger the person is, the more they're going to have the higher incidence of saying that they were not well trained. Having been around schools as long as I have, I probably have more experience than some of the others(laughing).

Principal of Laney High

Yeah! I don't think you teach that in a course. I think that's common sense. I mean I had a facilities course and all they talked about was different types of construction. But, I think it's common sense and dealing with people what teaches you about dealing with maintenance and facilities.

High school principals responded overwhelmingly that they didn't feel that they had been properly trained. However, they did convey the fact that they were knowledgeable about school facilities as a result of experience and common sense, which they described as on the job training. According to Agron (2000) principals have the responsibility of ensuring that the infrastructure factors are emphasized and met as it relates to the quality and standards of educational facilities.

9. Since your appointment as the principal of (School) in (County), have you been offered training specifically related to school facilities and maintenance?

Principal of Newside High

No. Well, let me go back on that. Let me just say, there's a gentleman here in the county that does energy conservation, so he affords that opportunity. So he basically speaks to the staff just about energy, lighting, and cooling and how that saves money for the county. But beyond that no. But, again it goes back to that hierarchy. They put people in place. I should never have to do anything. The gentlemen in charge here, the service manager here at that school basically does it. Fortunately, I came to a system that can afford to have someone like that. Soooo. And of course I bet a lot of poor systems don't do it either.

Principal of Indian Creek High

No.

Principal of East High

Ahh. Only once and that was when we were doing some things with flooring and they talked to us about upkeep and care of the floorings and things of that nature.

Principal of Laney High

Yeah.

10. Would you agree that graduate students earning leadership degrees could benefit from taking additional courses related to school facilities and maintenance?

Principal of Newside High

If you want to be a superintendent you have to learn how to build a school and you have to learn how to build the right school for your students. Many people focus on the leadership. You know? The Covey, the Good Lad and all that crap. You know, they need

to focus on the basic things. You know? How many classes have you taken in business finance? I know I haven't taken enough of those and we always focus on the "fru, fru" stuff of education. It's, it's the basic things like that. You need to know about facilities, you need to know about taxes, Splost, appropriate planning in the community and you can never get enough of that.

Principal of Indian Creek High

Oh, most definitely, most definitely. I think they most definitely could. And let me retract on one of those questions. You know I said about the plumbing was very important, but to be honest I think all areas are extremely important. I think you need all of them really to have the complete educational environment. And even though water is important I feel that some of those other areas that you mentioned are important as well and where I would rank them it would be very difficult. I guess, I'm thinking of water because we all need that, but ventilation, alot of things come into play, but I think all of them are important, but if I had to rank them I know that water flow is important.

Principal of East High

I don't know about additional courses. It's been a long time since I had my facilities course (laughing). But, I would say if you had a broader curriculum within a single facilities course, you probably could cover some of things. Building level supervisors, assistants principals, principals we don't really have too much to do with the design of a building and many times this is where they concentrate. Many times we are put into a buildings that's already there, it's already designed and we don't have anything to do with, but we do have to maintain it and make upgrades as time goes along in that building. So whether it's done in additional courses or broader curriculum in a course I

think certainly there needs to be more care taken in not necessarily how to fix things, but what to look when you're trying to keep your building in good order. Fortunately we've had good maintenance people here through the years so they notice those kinds of things.

Principal of Laney High

I really don't think it would make that much impact. I really don't. I think that the truth is, and I think folks need more training on how to deal with non-certified people, who are the custodians and maintenance people. I think the more training you have to deal with folks like that, that's the most practical training that you can receive is dealing with those folks. As far as the maintenance and so forth, that really comes down as a matter of personal pride and ethic as to whether you want things to run right and what you're willing to tolerate in terms of the facilities not operating to its optimal level. I've experienced considerable frustration in virtually every school that I've been in about something in the facility being inoperative and trying to get it operative. But, as I said earlier, the single thing that I think has the most impact on teaching and learning is either the building is too hot or too cold.

Overall the attitudes of high school principals indicated that graduate students aspiring to become principals could benefit from taking additional courses related to facilities and maintenance. However, the principal of East High believed that additional courses were not necessary, but should be broader in concepts that are covered in a facilities course. The principal of Laney High indicated that more training than anything in dealing with custodial and maintenance personnel may be more productive than additional college courses. It is important that educational leaders and politicians are aware of the relationship between school facilities and student learning so that positive

efforts can be made to provide the most conducive learning environments, which will ensure that education reforms such as NCLB are not undermined by poor learning facilities (Tennessee Advisory Commission, 2003).

Response to Research Questions

The overarching question and three research questions were answered with an analysis of the findings by the researcher for each specific question.

Overarching question:

What are Georgia school principals' perceptions of the impact of school facilities on student achievement?

According to the responses from the participants, Georgia principals' perceptions were that school facilities did impact student achievement and were considered a vital part to ensuring the success of the educational program within schools. The principals discussed the importance of school facilities and how it impacts the way student populations take pride in their schools and how the enthusiasm and morale of teachers in schools are affected. The principals also discussed the impact of the condition of school facilities and the very important message that it sends to students in all schools. In elementary school the principals seem to believe more strongly that the facilities impact student achievement more so than middle and high school principals participating in the study.

To what extent do Georgia school principal's place emphasis on the correlation between school facilities and student achievement?

For the most part the principals seemed to be involved in the upkeep of their respective facilities. They seemed to make concerted efforts to maintain facilities that were conducive to learning, comfortable, efficient and pleasing to the students. Many of

the principals emphasized the notion of the school building setting the tone for pride and academic excellence in their buildings. Most of the principals thought that it was very important to ensure that all the components of school facilities were adequate for learning. These components include the physical surroundings of the school, construction materials, technology available, amount of space available for students, teachers and staff, size of classrooms, cleanliness and a healthy environment that fosters safety (Lemasters, 1997). Since most of the participating principals indicated that they had only taken on average one course in the area of school facilities during their educational preparatory program, they still felt compelled to emphasize the importance of maintaining a very clean, healthy and comfortable environment. For those individuals that completed courses related to school facilities the one thing that the principals addressed, was the fact that in understanding facilities one must also have some grasp on budgeting in order to make things happen efficiently.

What is the knowledge level of Georgia school principals in the area of school facilities and to what extent do they use this knowledge?

Most of the principals agreed that they had a minimal amount of training in the area of school facilities and some thought the questions pertaining to the amount of training was interesting since that was something they had not thought about before. Their knowledge was based mainly on experiences that had come from learning on the job as principals in Georgia schools over the years. Some principals discussed receiving lessons from other principals, but inevitably stated that their knowledge was purely common sense in the area of school facilities. For one principal, this common sense was derived from understanding cleanliness from the standpoint of working as a former teacher and learning about the importance of cleaning and facilities care for students.

Another principal discussed the fact that he grew up working with his mother who had her own cleaning company and how that taught him a lot about industrial cleaning as it related to cleaning buildings such as schools. Most of the principals agreed that they had not received much training related to the area of school facilities from their county facilities officials. The researcher found this to be peculiar since the majority of the principals felt that their county level facilities departments considered school facilities to be important.

How much correlation is there between school facilities and student achievement as perceived by Georgia school principals?

According to the responses obtained from the principals during the interviews the principals' perceptions indicated that a strong relationship did in fact exist between school facilities and student achievement. The question asked the principals to rate the impact of school facilities on academic achievement on a relative scale from one to ten with one being the lowest rating possible and ten being the highest rating possible for school facilities impact on academic achievement. The average rating of the three school levels was seven. This average shows that the principals truly believed that school facilities conditions did strongly impact student achievement at some level, thus indicating that the degree of the relationship between school facilities and academic achievement as perceived by Georgia school principals is one that is strong. The average rating amongst the elementary principals was eight, which was the highest. The average rating amongst the middle school principals was seven and the average rating amongst the high school principals was a seven as well. Due to the fact that the principals perceived school facilities conditions as strongly impacting student achievement, the

researcher found it very important that the principals also expressed the importance of graduate students being offered additional classes related to facilities and maintenance.

Summary

The Institutional Review Board (IRB) at Georgia Southern University gave clearance for the research at which the researcher began scheduling interviews with twelve Georgia principals to gather their perceptions of the impact of school facilities on student achievement. All of the participants were located within Northeastern Georgia. The demographic profile for the study represented a wide range of diversity, experience, and educational background. The sample which consisted of twelve principals was appropriate for the study because it was a representative sample from the total population of schools in Northeast Georgia. The interviews were scheduled with the participants at their respective schools and at a time that best suited them. The interviews were conducted in the confines of each principal's office whereby they were asked eleven interview questions related to school facilities and student achievement. Each interview took approximately thirty minutes to complete. The research design for the study was qualitative in nature.

The researchers role in the described study included: determining which Georgia school principals were selected for the study, gathering their consent to participate in the study, interviewing these principals as it related to their perceptions of school facilities impact on student achievement, creating school portraits of each school, conducting on-site observations of each school, conducting an analysis of the responses to the interview questions and relating them to the initial literature. And finally, presenting the data in this chapter of the dissertation,

CHAPTER 5

SUMMARY, FINDINGS, RECOMENDATIONS, IMPLICATIONS, AND CONCLUSIONS

This chapter is a summary of the study, analysis of the research findings, discussion of research findings, conclusions based on the findings, implications and recommendations based on the analysis of the data gathered in the study.

The purpose of this study was to examine Georgia school principal's perceptions of the impact of school facilities on student achievement. The research questions include: (1) To what extent do Georgia school principal's place emphasis on the correlation between school facilities and academic achievement? (2) What is the knowledge level of Georgia school principals in the area of school facilities and to what extent do they use this knowledge? (3) How much correlation is there between school facilities and student achievement as perceived by Georgia school principals?

The study was completed largely through the use of structured interviews that were conducted with twelve principals in Northeastern Georgia. Each interview consisted of eleven questions and the completion rate for the tape recorded interviews was 100 %. The researcher scheduled the interviews with the principals at their respective schools. The interviews were audio recorded, kept in a secure location and transcribed by the researcher. In order to maintain the anonymity of the principals, their schools and respective schools districts were coded with pseudonyms throughout the study. The data was analyzed by the researcher before the findings were reported.

To bridge some of the limitations the researcher included on-site observations which permitted the researcher to develop school portraits of each school visited. The

on-site observation enabled the researcher to become an active participant in each school and enabled the researcher to view the body language, facial expressions, and other gestures made by the principals. The structured interview allowed the researcher to capture richer qualitative data as opposed to capturing random information of everyone's thoughts, beliefs; etc. Because it is the researcher that enters the setting, collects observational and other qualitative data qualitative researchers rely on themselves as the main collectors of data (Gay & Airasian, 2000).

There are several findings that emerged from the study; however, the major finding was that Sunrise Elementary, one of the older schools in the study, was awarded "Distinguished Title I School" four out of the five past years prior to completion of this study. Although the school was 51 years old, located in low-income area, used multiple portable classrooms and served a student population consisting of more than 80% African American students, the school still exceeded the standards for student achievement according to the Georgia Department of Education. In relation to this finding, the researcher observed that several schools that were built more recently did not achieve academically at the level of Sunrise Elementary. In fact Lee Road elementary was constructed within the last five years and did not meet Adequate Yearly Progress according to the principal. Other findings: (1) Principals felt that school facilities upkeep was important at their county level, although the principals indicated that they had not received much training in reference to school facilities upkeep and maintenance from their school districts. (2) Principals were usually required to take only one course related to facilities while enrolled in educational leadership programs. (3) Principals had not been properly trained in reference to school facilities. (4) Principals indicated that a

strong correlation did exist between student achievement and school facilities conditions. (5) Principals indicated that school facilities were in need of improvement, especially at the elementary level. (6) Principals felt that graduate students earning leadership degrees could benefit from taking additional courses related to facilities, with particular attention given to the concepts such as budgeting, construction, maintenance; etc.

The researcher is hopeful that this research is important to politicians, educational leaders, parents, teachers and community stakeholders. The researcher will communicate the findings to these individuals through publications, books, articles, public presentations, staff development programs and other professional venues.

Findings

In speaking with the principal of Sunrise Elementary and conducting on-site observations with other principals, I found that student achievement within this much older school, located in a low-income area, and serving minority students was higher than that of schools built more recently. **(Major Finding)** This is not consistent with the literature as presented by Phillips (1997), who investigated the relationship between school building age and academic achievement. Phillips found that there were indeed significant differences in both reading and mathematic scores between upper elementary students attending schools in new buildings as oppose to those students attending older schools in Georgia. This is also in contradiction with research conducted by McGuffey and Brown (1978) who studied the relationship between building age and student achievement in 188 school districts in Georgia. The researchers compared fourth and eighth grade scores from the Iowa Test of Basic Skills along with eleventh grade scores on the Test of Academic Progress. Upon completion of the study the researchers

concluded that there was at least a 3% difference in achievement scores of students which could be attributed to the age of school facilities after removing all other socioeconomic factors. The principal of Lee Road elementary stated, “Facilities don’t help good teaching. Without a good environment, good teaching could still occur in an old, dilapidated building” (Chapter IV, p. 71).

Principals felt that school facilities upkeep was important at their county level, although the principals indicated that they had not received much training in reference to school facilities upkeep and maintenance from their school districts. **(Finding 1)** This is consistent with the literature and research question number one which examines the extent that Georgia principals place emphasis on the correlation between school facilities and student achievement. School principals have the responsibility of ensuring that the infrastructure factors are emphasized and met as it relates to the quality and standards of educational facilities (Agron, 2000). Principal of Clemson Middle stated, “I think it’s very important at our county level and the school facilities are well maintained in that we have a person designated for that and up to this point there has not been a need that I have discussed that has not been met” (Chapter IV, p. 92).

Principals were usually required to take only one course related to facilities while enrolled in educational leadership programs. **(Finding 2)** There is no place in school facilities literature which addresses the number of facilities courses that should be required for aspiring principals. It is the researcher’s view that additional facilities courses should be offered to aspiring school leaders during graduate leadership programs.

Principals felt that they had not been properly trained in reference to school facilities upkeep and maintenance. However, principals indicated that their knowledge

and actions related to school facilities were “common sense” and was accumulated over time. **(Finding 3)** A gap in the literature exists in addressing how principals should be trained in the area of school facilities and maintenance. This finding is consistent with and negates the researchers’ assumptions that principals are managing facilities on experiences rather than some type of formal training. It is the researchers’ view that a new principal that has not had experiences related to school facilities and may not know how to assess school facilities issues and the procedures to correct them through the school or district level facilities department. The principal of East High school stated, “I think the younger principals coming into the profession are going to have the higher incidence of saying, that they were not well trained in the area of facilities” (Chapter IV, p. 115).

Principals indicated that a strong correlation exist between student achievement and school facilities conditions. **(Finding 4)** This is consistent with the literature and research question number three which examines the correlation between school facilities and student achievement as perceived by Georgia school principals. In a study of inner city high schools it was concluded that a relationship between building condition and student achievement did exist. Research found that student achievement percentile points were eleven points lower in substandard buildings as opposed to above standard buildings (Hines, 1996). Earthman, Cash, and Van Berkum (1995), conducted a study that investigated the relationship between school building conditions and student achievement. The study consisted of all 199 high schools in North Dakota and the scores obtained by all eleventh graders on the Comprehensive Test of Basic Skills (CTBS) throughout the state. Results showed that in all sub-tests with the exception of

Math and Social Studies that the students attending school in above standard school buildings achieved higher scores as oppose to those attending school in sub-standard school buildings.

Principals indicated that school facilities were in need of improvement, especially at the elementary level. **(Finding 5)** This is consistent with literature and research question number one which examines to what extent do Georgia school principals' place emphasis on the correlation between facilities and student achievement. The condition of school facilities in the United States public education system has been declining for many years and proper attention has not been paid in retiring these outdated, unhealthy and American with Disabilities Act non-compliant schools (Lyons, 2001). The principal of Alphabet Elementary stated, "Because there's a lot of repairs that are needed and lots of modifications" (Chapter IV, p. 75). The researcher does believe that schools should uphold a certain standard for school facilities in order to ensure that the best learning environment exist for all students.

Principals felt that graduate students earning leadership degrees could benefit from taking additional courses related to facilities, with particular attention given to the concepts such as budgeting, construction, maintenance; etc. **(Finding 6)** This finding illustrates the researcher's belief that if principals are given a broad knowledge base in reference to school facilities they will be more able to understand facilities issues and address them before they can impact student achievement within schools. This finding is also consistent with the Tennessee Advisory Commission (2003) that reported that it is important that educational leaders and politicians are aware of the relationship between school facilities and student learning so that positive efforts can be made to provide the

most conducive learning environments, which will ensure that education reforms such as NCLB are not undermined by poor learning facilities. This was also examined through research question number two which examined the knowledge level of Georgia principals in reference to school facilities and the extent they use this knowledge. The principal of Washington Middle school stated, "...it will be important to know about facilities so that I can be conscious of what is adequate and ensure facilities standards are in place. Right now I have had no training or have any understanding beside the fact, I like the building to be clean personally" (Chapter IV, p. 99).

Recommendations

This study adds to the limited amount of research that exists on the topic of principals' perceptions of school facilities impact on student achievement. The findings suggest that the following recommendations be shared with other educational leaders, school facilities directors, and post-secondary education faculty. Educational leadership programs in the State of Georgia should include more courses related to school facilities upkeep and maintenance as part of degree requirements for graduate students. However, these courses should be broad in nature to cover a wide range of facilities concepts and maintenance issues. Information covered in these courses will give perspective principals a strong knowledge base as it relates to ensuring that school facilities needs are met regularly. The syllabus of current facilities courses should be assessed to determine if content is appropriate for application by principals of school facilities concepts.

School districts should continue to ensure that school facilities are a high priority in providing students with learning environments that are well maintained and provide the necessary comfort level to ensure maximum academic achievement opportunity.

School districts should allocate funding to regularly provide training to school principals related to the area of school facilities and maintenance. This training will inform principals of how to conduct school facilities walk thru's in a proactive manner as oppose to a reactive manner, which will help principal's to recognize potential facilities issues before they have an impact on students and teachers. Funding for this training could be written in the district budget for each fiscal school year.

Further research with both quantitative and qualitative aspects could be conducted with teachers, parents and students to gather their perceptions of school facilities' impact on student achievement. This will allow other perspectives, which might help further in improving school facilities initiatives. Research should be conducted to determine what elements exist in older schools, in low income areas that serve both poor and minority students, but continue to demonstrate student achievement higher than that of more recently constructed schools.

Implications

The implications for this study include three facets which are educational research, educational practice and educational policy. The implications for educational practice is that when principals understand the correlation between school facilities conditions and student achievement, they are better able to provide the best conditions possible for an optimal teaching and learning experience for students and teachers. It is also important that district facilities directors too understand the important correlation that exists between school facilities and student achievement. Implications for educational policy is that all school districts in the United States must meet the No Child Left Behind mandates that require all students to be on grade level by 2014. Other

implications include allocating budget funding for facilities training annually and completing assessments of school facilities course syllabi in post secondary institutions. It is the researchers' hope that this will help aspiring principals to develop a knowledge base so that they are capable of ensuring that adequate school facilities exists for students and teachers. One implication for educational research is an in-depth look into effective practices within all schools that yields the best results for students regardless of the condition of school facilities. For example a more thorough look into the practices of high performing schools in older buildings and the practices in low performing schools in more recently constructed schools. Finally, continued research to determine or report standards for what a school with adequate facilities resembles is needed.

It is the researchers' hope that students will enter the workforce as educated citizens, who will eventually pay taxes, replace retiring workers and develop families themselves who will understand the importance of attending and performing well in school. As stated earlier, by providing adequate facilities for learning a positive message is created and sent to students who attend public schools, which is that educators care about them, and their academic achievement. By providing schools that are adequate for learning, students will internalize the idea again that their success is of high importance through all levels of the education profession.

CONCLUSION

In conclusion, it is very important that the researcher reiterates the idea that if education is truly valued by educational leaders, politicians and community leaders there must be attention given to the conditions of schools in which students are served. The research clearly suggests that principals do not receive enough training in the area of

school facilities and maintenance, therefore creating a need for training in the area of school facilities. This relates to findings by Agron (2000), where he discusses the premise that school principals have the responsibility of ensuring that the infrastructure factors are emphasized and met as it relates to the quality and standards of educational facilities. The researcher's findings suggest that principals do feel that a strong correlation exists between school facilities and student achievement and attempt to place emphasis on school facilities upkeep and maintenance. The findings also suggests that principals feel that additional courses related to school facilities would be valuable for aspiring school principals enrolled in leadership programs. It is the researchers' view that schools should be well maintained in order to facilitate learning for all students. Standards have been raised as a result of the No Child Left Behind mandates, but no attention has been given to ensuring that places of learning for all students are appropriate. This is consistent with a report by Healthy Schools Network, Inc. (2003), which reported that after Congress created a grant program to assist with school construction, it then failed to fund the program.

In reference to Walt Whitman's poem presented previously, children often envision themselves by the environments in which they interact. For the purpose of examining the conditions of school facilities, this poem was referenced because it conveys a concise message, which is, if children are shown negative images or placed in negative environments, the negative things they see or come in contact with could become a part of them. This is closely related to the conditions of school facilities as the principals repeatedly discussed the impact that facilities conditions had on student pride, school culture and generally students' feelings about their school.

As an educational practitioner I think it is pertinent to note findings by Kozol (1992) whereby he discusses that 90 percent of the male inmates in the New York City Department of Corrections are school dropouts. Kozol moves further with an estimation of the costs of housing each inmate, which he found to be roughly \$60, 000 a year. This is clearly an astronomical price to pay when per pupil expenditures, which help ensure adequate facilities exists can range any where from \$3,000 to \$12, 000 per pupil in most areas. I would ask all political, educational, and community leader's one question and that question being is it by coincidence or by design that we as a society invest more money into prisons than we do into places of learning for our students?

If we are capable of providing state of the art facilities for convicted felons, we are surely capable of building new age school buildings fitted with all the necessary facilities components. Once again, if we provide teachers and students with environments that fosters learning for all students then we may possibly eliminate the need for prisons, which are constructed in Georgia based on Criterion Reference Competency Test(CRCT) failure rates of third grade students.

BIBLIOGRAPHY

- Agron, J. (2000). All things being equal. *American School & University*, 72(8), 8.
- Agron, J. (1999). Taking care of business. *American School & University*, 72(1), 52-54.
- Biehle, J. (2000). Designing safer schools. *American School & University*, 72(5), 44-46.
- Berner, M. (1993). Building conditions, parental involvement, and student achievement in the District of Columbia Public School System. *Urban Education*, 28(1), 6-29.
- Blackwell, H.R. (1963). A general quantitative method for evaluating the visual significance of reflected glare utilizing performance data. *Illuminating Engineering*, 58-61
- Bowers, J. H., & Burkett, C. (1987). Relationship of student achievement and characteristics in two selected school facility environmental settings. Paper presented at the 64th Council of Educational Facility Planners, International Conference. Edmonton, Alberta, Canada. (ERIC Document Reproduction Service No. ED286278)
- Branham, David (1997). The wise man builds his house upon the rock: the effects of inadequate school infrastructure on student performance. Paper presented to University of Houston Center for Public Policy.
- Buckley, J., Schneider, M. & Shang, Y. (2003). Linking school facility conditions to teacher satisfaction and success. Retrieved June 3, 2004, from National Clearinghouse for Educational Facilities website: <http://www.edfacilities.org>
- Cash, C. (1993). A study of the relationship between school building condition and student achievement and behavior. Unpublished doctoral dissertation, Virginia Polytechnic Institute and State University, Blacksburg, Virginia.
- Chan, T.C. (1979). The impact of school building age on the achievement of eighth grade pupils from the public schools in the state of Georgia. Unpublished doctoral dissertation, University of Georgia, Athens, Georgia.
- Chan, T. C. (1980). Physical environment and middle grade achievement. (Report No. EA 015 130). (ERIC Document Reproduction Service No. 198645)
- Chan, T.C. (1996). Environmental impact on school learning. (Report No. EA 028 032). (ERIC Document Reproduction Service No. 406722)
- Clandinin, D. J. & Connelly, M. F. (2000). *Narrative Inquiry: Experience and story in qualitative research*. San Francisco, California: Jossey-Bass, Inc.

- Kozol, Jonathan (1991). *Jonathan Kozol Savage Inequalities: Children in America's Schools*. New York, New York: Crown Publishers, Inc.
- Corcoran, T., Walker, L. & White, L. (1988). Working in urban schools. Washington, DC, Institute for Educational Leadership
- Denzin, N. K., & Lincoln, Y. S. (2003). *Collecting and interpreting qualitative materials* (2nd ed.). Thousand Oaks: Sage Publications
- Dunn, R., Murray, J.B. & Quinn, P.J. (1985). Light up their lives: A research on the effects of lighting on children's achievement and behavior. *The Reading Teacher*, 83 (19), 863-869
- Duke, D., & Griesdorn, J. (1998). Where our children learn matters: A report on the Virginia school facilities impact study. Retrieved June 8, 2004, from National Clearinghouse for Educational Facilities
- Earthman, G.I., & Lemaster, L. (1996). Review of research on the relationship between school buildings, student achievement, and student behavior. Retrieved April 11, 2005 from Council of Educational Facility Planners.
- Earthman, G.I. (2002). School facility conditions and student academic achievement. UCLA's Institute for Democracy, Education, & Access. Williams Watch Series: Investigating the Claims of Williams v. State of California. University of California, Los Angeles
- Earthman, G.I. (2004, January). *Prioritization of 31 criteria for school building adequacy*. Paper presented to American Civil Liberties Union Foundation of Maryland, Baltimore, MD.
- Earthman, G.I., Cash, C., Van Berkum, D. (1995). "A Statewide Study of Student Achievement and Behavior and School Building Condition." Presentation at annual meeting Council of Educational Facility Planners, Dallas, Texas, September 19, 1995. (Eric Document Reproduction Service 387878)
- Frazier, L. (1993). Deteriorating school facilities and student learning. ERIC Digest 82. Retrieved June 1, 2004 from Schapiro & Associates (2001). National survey of public school teachers.
- Garrett, D. M. (1981). *The impact of school building age on academic achievement of high school pupils in The State of Georgia*. Unpublished doctoral dissertation, University of Georgia, Athens, Georgia.
- Gay, L.R. & Airasian, P. (2000). *Educational Research: Competencies for analysis and application* (6th ed.). New Jersey, Ohio: Merrill-Prentice Hall

- Hathaway, W.E. & Fielder, D.R. (1986). *A window on the future: A view of education and educational facilities*. Paper presented at the meeting of the Council of Educational Facility Planners, Columbus, OH.
- Healthy Schools Network, Inc. (2003) Policy paper: Improving student health, improving student achievement and saving money for schools.
- Healthy Schools Network, Inc. & Advocates for Children of New York, Inc. (1999). *Neglected Buildings, Damaged Health: A 'Snapshot' of New York Public School Environmental Conditions*.
- Heschone Mahone Group. (1999). *Daylighting in schools: An investigation into the relationship between daylighting and human performance*. California Board for Energy Efficiency Third Party Program. Submitted to Pacific Gas & Electric. (ERIC Document Reproduction Service No. ED444337)
- Hines, E. (1996). *Building condition and student achievement and behavior*. Unpublished doctoral dissertation, Virginia Polytechnic Institute and University, Virginia.
- Honeyman, D. (1999). Financing school facilities. *American School & University*, 71(5), 54-56.
- Ikpa, V.W. (1992). *The Norfolk decision: The effects of converting from a unitary educational system to a dual educational system upon academic achievement*. Norfolk City Schools, Virginia. (ERIC Document Reproduction Service No. 346583).
- Kaufman, S. S. (1984). Stresses and coping styles of elementary school children. Unpublished doctoral dissertation, Arizona State University, Scottsdale, Arizona.
- Kennedy, M. & Agron, J. (2004). No buildings left behind. *American School & University*. 76(7), 20-26.
- Lowe, J. (1988). The interface between educational facilities and learning climate. Unpublished doctoral dissertation, Texas A&M University, College Station, Texas.
- Lyons, J. (2001). *Do school facilities really impact a child's education?* (ERIC Document Reproduction Service No. 4587971).
- Marshall, C. & Rossman, G. B. (1999). *Designing qualitative research* (3rd ed.). Thousand Oaks: Sage Publications.
- McGuffey, C.W. & Brown, C.L. (1978). The impact of school building age on school achievement in Georgia. *CEFPI Journal*, (16) 6-9

- Morris, R. (2003). *The relationships among school facility characteristics, student Achievement, and job satisfaction levels among teachers*. Unpublished doctoral dissertation, University of Georgia, Athens, Georgia.
- MurRAIN, P. G. (1983). *Administrative determinations concerning facilities utilization and instructional grouping: An analysis of the relationships between selected thermal environments and preferences for temperature, an element of learning style, as they word recognition scores of secondary school students*. Unpublished doctoral dissertation, St. John's University, New York.
- Nicklas, M. H. & Bailey, G. B. (1995). *Analysis of the performance of students in daylight schools*. Unpublished manuscript of Innovative Design, Raleigh, North Carolina.
- O'Neill, D. & Oates, A. (2000). *The impact of school facilities on student achievement, behavior, attendance, and teacher turnover rate in central Texas Middle Schools*. Texas A&M University, College Station, Texas.
- Patton, M. Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). Newbury Park: Sage Publications.
- Phillips, R. W. (1997). *Educational facility age and the academic achievement of upper elementary school students*. Unpublished doctoral dissertation, University of Georgia, Athens, Georgia.
- Plumley, J.P. (1978). *The impact of school building age on the academic achievement of pupils from selected schools in the state of Georgia*. Unpublished doctoral dissertation, University of Georgia, Athens, Georgia.
- Rivera-Batiz, F.L. & Marti, L. (1995). *A school system at risk: A study of the consequences of overcrowding in New York City Public Schools*, Columbia University, New York Teachers College institute for Urban and Minority Education
- RTI International, California Air Resources & California Department of Health Services (2003). *California portable classrooms study project executive summary*. Retrieved June 4, 2004, from National Clearinghouse for Educational Facilities website: <http://www.edfacilities.org>
- Schapiro (2001). *National survey of public school teachers*. Retrieved June 3, 2004 from National Clearinghouse for Educational Facilities Website: <http://www.edfacilities.org>

- Stricherz, M. (2000). Bricks and mortarboards. *Education Week*, 20(14), 30-33.
- Tanner, K. & Langford, A. (2003). *The importance of interior design elements as they related to student outcomes*. (Report No. EF 006 318). (ERIC Document Reproduction Service No. 478177)
- Tennessee Advisory Commission on Intergovernmental Relations (2003). Do k-12 school facilities affect education outcomes? Staff Information Report
- Thomas, J. A. (1962). *Efficiency in education: A study of the relationship between selected inputs and mean test scores in a sample of senior high school*. Unpublished doctoral dissertation, Stanford University.
- Uline, C. (2000). Decent facilities and learning: Thirman A. Milner Elementary School and beyond. *Teachers College Record*, 102(2), 442-461.
- Yin, R. K. (1989). Case study research. Thousand Oaks, CA: Sage.
- Young, E. (2003). Do K-12 school facilities affect education outcomes? Retrieved June 8, 2004, from National Clearinghouse for Educational Facilities website:
<http://www.edfacilities.org>
- Whitman, W. (1855). *Leaves of Grass*, "There was a child went forth", New York, New York: Penguin Group

APPENDIX A

INTERVIEW QUESTIONS

1. How many clock hours of training have you received in the area of school facilities upkeep and maintenance?
2. During your educational administration preparatory program how many courses did you complete in the area of school facilities? How have employed these concepts to ensure the best school facilities conditions possible for your students?
3. Is school facilities maintenance a delegated duty for another school level administrator or is this a duty that you choose to see after?
4. How would you rate the impact of school facilities conditions on academic achievement on a relative scale of 1 to 10? With 1 being the lowest rating possible and 10 being the highest rating possible for school facilities impact on academic achievement. Please explain.
5. In what ways do you view school facilities conditions impacting academic achievement within schools? Explain.
6. At this point do you feel as though school facilities maintenance is important at the county level? Explain.
7. How would you rate your school in the area school facilities on a relative scale from 1 to 10? Explain.
8. Explain what you would describe as the most important school facility component affecting the educational program within your school?
9. Do you feel that you have been properly trained in order to determine when school facilities conditions are in need of improvement? Explain.

10. Since your appointment as the principal of (School) in (County), have you been offered training specifically related to school facilities and maintenance?
11. Would you agree that graduate students earning leadership degrees could benefit from taking additional courses related to school facilities and maintenance?

APPENDIX B
LETTER TO PRINCIPALS

February 26, 2006

Dear Principal,

My name is Zheadric E. Barbra, and I am a doctoral student currently enrolled at Georgia Southern University. I am also the Assistant Principal at Carver Middle School in the Walton County School System. In completing my dissertation, I am conducting interviews to study Georgia school principals' perceptions of school facilities impact on student achievement. My desire is that through the collection of this information I may be able to gather valuable insight into school facilities and its importance to the education process.

This letter is requesting your assistance in gathering this data through the form of a structured interview that I will administer to you in regards to your perceptions of school facilities impact on student achievement. If you agree to participate in the study, the researcher will tape record and transcribe the information after the interview. This data will later be compared and contrasted with other principals like you in summary form. You will be provided with a definition of school facilities and I will ensure that your responses will remain confidential. You do have the right to refuse to answer any question during the interview, may terminate the interview at any time or choose to have any or all of your responses deleted from those analyzed. Once all participants have completed the interview the data gathered from the study will be included in my dissertation which will be on public file.

If you have any questions or concerns about this proposed research project please contact me at (770) 780-6628 or (678) 361-5341. You may also contact me via e-mail at zbarbra@walton.k12.ga.us. You may also contact my academic advisor Dr. Walter Polka via e-mail at wpolka@georgiasouthern.edu. Please feel free to contact the IRB coordinator at the Office of Research Services and Sponsored Programs at (912) 681-5465 for any other questions.

Let me thank you in advance for your assistance with this study. I do realize that your time is very important, however this interview and school visit should be brief and to the point. I am sure that the results of this study will be valuable to educational leaders in Georgia.

Sincerely,

Zheadric E. Barbra, Ed. S
Assistant Principal, Carver Middle School

APPENDIX C
IRB APPROVAL LETTER

Georgia Southern University Office of Research Services & Sponsored Programs Institutional Review Board (IRB)		
Phone: 912-681-5465		Administrative Annex P.O. Box 8005
Fax: 912-681-0719	Ovrsight@GeorgiaSouthern.edu	Statesboro, GA 30460

To: Zheadric E. Barbra
40 Parc Lane
Covington, GA 30016

CC: Dr. Walter Polka
P.O. Box 8131

From: Office of Research Services and Sponsored Programs
Administrative Support Office for Research Oversight Committees
(IACUC/IBC/IRB)

Date: February 17, 2006

Subject: Status of Application for Approval to Utilize Human Subjects in Research

After a review of your proposed research project numbered: **H06137**, and titled **“Georgia School Principals' Perception of the Impact of School Facilities on Student Achievement”**, it appears that (1) the research subjects are at minimal risk, (2) appropriate safeguards are planned, and (3) the research activities involve only procedures which are allowable.

Therefore, as authorized in the Federal Policy for the Protection of Human Subjects, I am pleased to notify you that the Institutional Review Board has approved your proposed research. **This IRB approval is in effect for one year from the date of this letter.** If at the end of that time, there have been no changes to the research protocol, you may request an extension of the approval period for an additional year. In the interim, please provide the IRB with any information concerning any significant adverse event, **whether or not it is believed to be related to the study**, within five working days of the event. In addition, if a change or modification of the approved methodology becomes necessary, you must notify the IRB Coordinator **prior** to initiating any such changes or modifications. At that time, an amended application for IRB approval may be submitted. Upon completion of your data collection, you are required to complete a *Research Study Termination* form to notify the IRB Coordinator, so your file may be closed.

Sincerely,

Julie B. Cole
Director of Research Services and Sponsored Programs

APPENDIX D

Literature Matrix

ARTICLE	PURPOSE	PARTICIPANTS	DESIGN/DATA COLLECTION	OUTCOMES/ CONCLUSIONS
Bowers, Burkett (1987)	Examines the differences in academic achievement in two selected schools with emphasis placed on conditions of facility.	Two selected schools.	Quantitative	Students in newer school performed better on different tests, higher attendance rates and discipline issues.
Earthman, 2002	Synthesis of school facilities issues faced in Williams vs. The State of California	N/A	N/A	School facilities and the surrounding environment impact student learning. When the school environment is positive, students achieve more.
Frazier, 1993	Examine the perceptions of school principals on deteriorating school facilities and student learning.	N/A	N/A	Parental involvement, lobbying political officials and the use of the PTA can help the condition of school facilities until funding is allocated.
Schapiro, 2001	Examines teachers' opinions regarding the relationship between interior design and academic performance.	1,050 teachers nationwide	Quantitative: Survey	Teachers from all grade levels across the country recognize the fact that a well-designed classroom enhances their ability to teach and students' ability to learn.
RTI, (2003)	Examine environmental health conditions in K-12 portable classrooms in California.	1,039 California public schools	Quantitative: Survey Questionnaire	There are clear differences in environmental factors between portable and traditional classrooms.
Duke, Griesdorn (1998)	To better understand the connection between facilities and learning and teaching.	127 Superintendents	Quantitative: Survey	School facilities do matter when it comes to learning and teaching.
Young (2003)	Determine the impact that school facilities have on education outcomes.	N/A	N/A	Schools should be subject to school facilities audits annually to improve student achievement.

APPENDIX E

STRUCTURED INTERVIEW ITEM ANALYSIS

Interview Question	Research	Research Question
1.	Agron, 2000	2
2.	Tennessee Advisory Commission, 2003	1
3.	Agron, 2000	1
4.	Tanner, Langford, 2002	3
5.	Uline, 2000	2
6.	Lyons, 2001	1
7.	Lumley, 1978	2
8.	Chan, 1980	3
9.	Honeyman, 1999	2
10.	Agron, 2000	2
11.	Kennedy, Agron 2004	3

APPENDIX F

QUANTITATIVE ITEM ANALYSIS OF #4 and # 7

Interview Questions	Elementary School Principals	Middle School Principals	High School Principals	Average Rating
Q. 4 Rating impact of school facilities conditions on academic achievement from 1 to 10.	9	7	7	7
Q. 7 How would you rate your school facilities in the area of school facilities from 1 to 10?	6	8	7	7

Appendix G

Schedule of Interviews

Name of School	Day	Time
Monument Middle	February 22, 2006	3:30 p.m.- 4:00 p.m.
Washington Middle	February 26, 2006	4:30 a.m. - 5:00 p.m.
Alphabet Elementary	February 26, 2006	8:30 a.m. - 9:00 a.m.
Newside High	February 28, 2006	8:00 a.m.- 8:30 a.m.
Indian Creek High	March 2, 2006	9:45 a.m.- 10:15 a.m.
Granite Middle	March 2, 2006	10:30 a.m.- 11:00 a.m.
Sunrise Elementary	March 2, 2006	11:45 a.m. - 12:15 p.m.
East High School	March 2, 2006	12:30 p.m.- 1:00 p.m.
Lee Road Elementary	March 2, 2006	1:00 p.m.- 1:30 p.m.
Clemson Middle	March 2, 2006	3:30 p.m.-4:00 p.m.
Grant Elementary	March 3, 2006	1:30 p.m.-2:00 p.m.
Laney High	March 10, 2006	3:30 p.m.-4:00 p.m.